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GLEANINGS IN BEE CULTURE

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No. 2.



BEEKEEPER OF ANCIENT EGYPT.

C. O. FLUHARTY. '09.

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EDITORIAL

By E. R. ROOT.

IN view of the fact that A. I. Root, in his Florida home, where he goes for rest and recreation, has no stenographer, all correspondence relating to bees and general business, and all other matter except that requiring his special attention, should be sent to the A. I. Root Co., at Medina. Mr. Root, Sr., has paid comparatively little attention to bees since his elder son, the writer, took practical editorial charge of the journal 24 years ago last December. While A. I. R. did not at that time drop all connection with apicultural writing he gradually let go; and now, and for many years back, all matters relating to bees and bee-keeping are taken care of by his sons. All matters relating to the Home talks and special agricultural subjects may be referred to Mr. Root at Bradentown, Florida; but the reader should remember that, owing to the lack of facilities for taking care of correspondence, his replies, if any, will have to be very brief or answered in GLEANINGS. It would be a physical impossibility for him to reply to all the kind friends who have written him. If they wish him to continue the writing of those Home papers they should spare him all the letter-writing they can.

THE FUTURE OF CHUNK HONEY.

IN the January issue of *The Bee-keeper's Review* there are two articles on the subject of bulk comb honey, or chunk honey, as it is called in the South. Mr. J. J. Wilder, of Georgia, tells of its merits, both as regards production and selling. Following this article is one by M. P. Cady, of Wisconsin, showing why chunk honey does not meet with favor in the North. As a reflection, after looking over these two opinions, we may say that we believe our Southern beekeepers do not realize that the condition of the honey market in the North is such that the sale of chunk honey is much more difficult than in the South, and that our Northern beekeepers, who possibly have not paid enough attention to this branch of the industry, do not realize that the public will not accept chunk honey in large quantities at the start, but that the sales must be stimulated by careful and painstaking efforts on the

part of the producer or the salesman. There is no question that chunk honey can be more cheaply produced than comb honey, and there are many other advantages attendant upon its production, such as the easier control of swarming, the smaller amount of labor required, etc. However, the experience of such a man as Mr. Cady, who, we think, gave the production of chunk honey a fair trial, should not be overlooked. The following, in Mr. Cady's own words, is a part of the description of his experiment and its result, as given on page 17 of the *Review*.

In order to test thoroughly the desirability of chunk honey, and at the same time to develop a market for the new product, a good salesman was employed to solicit orders direct from the consumers. A fine sample in a flint-glass pail was used in securing orders. The salesman explained the superior money value of the chunk honey, and, being a silver-tongued hustler, he made sales very readily at 12½ cents per lb., at the same time selling, to those who preferred, extracted honey at 10 cents and section honey at 15. However, most of the sales were chunk honey.

While the immediate results were very satisfactory, the final results were disappointing. An occasional patron was pleased with the chunk honey; but more than nine-tenths of the purchasers were emphatic in expressing their preference for *either* extracted or section honey; and, finding it impossible to make sales of the chunk honey, I was obliged to discontinue its production. On the part of the consumers there were three principal objections to chunk honey, as follows:

1. Its mussy condition—being much more so than either straight extracted or comb honey.
2. The flavor of the bulk comb honey was not equal to that of section honey—presumably due to the coating of extracted honey, as in many cases the comb honey in the chunk-honey packages was cut directly from sections that were nearly filled.

3. Candying of the extracted honey in the chunk-honey packages spoiled the comb honey for table use. An effort to liquefy the candied honey melted the combs, and the resulting mixture of honey and beeswax was a rather disgusting mess to the purchaser who had listened to the salesman's honeyed words in praise of his "pails of fancy comb honey chinked with the finest comb-free honey;" for when the smiling salesman again took the field the sentiment in regard to *chunk* honey was this:

"Throw physic (chunk honey) to the dogs. I'll none of it."

It may be said by the chunk-honey advocates that the foregoing objections are not good; but they were good enough to cause my customers to call for either comb or extracted honey in almost every instance, much to my regret and financial loss, as I had procured a special outfit for comb-honey production.

SHAKING OR BRUSHING TO CURE FOUL BROOD.

A CORRESPONDENT thinks we are inconsistent when we advise shaking to cure foul brood, and in another place recommend shaking and brushing, or brushing only. In the former case we have used the term "shaking" as indicating a *general* method of cure that involves both shaking and brush-

ing. For the benefit of some who might be misled we will endeavor hereafter to use the terms shaking and brushing, because it is doubtless true that some would shake combs containing raw nectar when they ought to brush.

THE MOTH-WORM AND ITS WORK; A DISAPPEARING PEST IN AMERICA.

THE half-tone reproduction on page 47 of this issue is a splendid illustration of the work of the wax-worm. These nasty creatures not only soil up parts of the hive and the combs with their webs, but leave their dirt scattered all over every thing. What is more, they seem to have the power to gnaw or furrow into wood as a careful scrutiny of the illustration will show. Very fortunately, however, the pest is fast becoming unknown in the United States. The introduction of Italian bees, and even their crosses with the black bees, is responsible for this. If we could only speak as confidently of the elimination of the brood diseases, the American bee-keeper would have but little to fear from any thing but winter losses.

BEEES AND NEIGHBORS.

EVERY season after the honey-flow we are called upon to give advice on how to proceed in case of trouble over the alleged trespass upon the property of an adjacent neighbor. In some cases we advise the removal of the bees; in others we recommend keeping them where they are. In the latter case we supply our bee-keeping friend with literature which he places before his complaining neighbor. We did this in the case of a prominent bee-keeper whose name for obvious reasons we withhold, and received back a reply which shows that our dose of literature convinced the complainant that he had "no case," and apparently the matter dropped. Of course, cases of this kind we always refer to the General Manager of the National Bee-keepers' Association.

HONEY DOUGHNUTS.

VERY many are fond of doughnuts and coffee; but when they become a little old they are dry and hard. The suggestion has been made to use a small percentage of honey to keep them moist. Who knows about this, and who can give us a good recipe for honey doughnuts? We know that honey will keep nearly all kinds of baked cakes soft almost indefinitely, the keeping quality depending upon the amount of honey used. Honey-jumbles, for example, twelve years old, as we know by actual experience, are as nice and fine eating as when they were first made. Some years ago we went through a baking establishment and were there told that honey is used because it preserves various kinds of cakes, keeping them moist, where a plain sugar would allow them to dry up in a short time, rendering them unsalable.

In this connection we should like to get reports from those who have a new honey

recipe, either for candy or cakes. Do not offer it unless it is first class, and something that you yourself have tried.

ZINC QUEEN-EXCLUDERS; RIGHT AND WRONG SIDE UP.

W. E. BURKITT, Honorable Secretary of the Wilts Bee-keepers' Association, of England, offers in the *British Bee Journal* a suggestion as to the manner of putting on perforated zinc queen-excluders that we believe is worthy of consideration. He says:

ZINC QUEEN-EXCLUDERS.

Are those who complain of excluder zinc hindering the passage of the bees careful to lay it on *right side up*? Years ago I saw this mentioned in the *British Bee Journal*, and found the necessity for it, as there is a slight burr from punching on one side, and this should always be placed uppermost, as I suppose many bee-keepers know.

If there is any thing in this idea (and apparently there is), manufacturers will probably see to it that the wood-bound zinc excluders have the zinc so placed that the burr edge will be on the *top* side, for it is apparent that it will be more difficult for the bees to pass the metal loaded than when their sacs are empty. For that reason the easier side of ingress should be presented to the fielders.

For a like reason the zinc excluder-guards should have the burr edge on the inside.

It is practically impossible, in the punching of the zinc, to avoid the burr edge entirely. If the rough side be polished off in a separate machine it will leave a feather edge inside the slots that can not be removed, and this would be worse yet. Attempts have been made to remove this burr; but die and punch experts say that it is impossible to eliminate it entirely, and for that reason there has been introduced the wire-bar excluders, so that bees can readily pass *either* way, because there is no right or wrong side.

THE COVER DESIGN; BEE-KEEPERS OF ANCIENT EGYPT.

WERE the ancient Egyptians the first bee-keepers? Many are inclined to think they were. If the apiaries of Old Egypt were stocked with *Apis fasciata* (which seems to be a purely African bee) they may have been. The Egyptians being kindred to the tribes inhabiting their "pathway of migration" from a prehistoric home somewhere in Western Asia may have led to the introduction of this beautiful species of apis among these peoples. Of course this would easily account for the very close resemblance of Holy Land and Cyprian bees to *Apis fasciata*. Be this as it may, the Egyptians early developed the art of bee-keeping, and, as the paintings upon the walls of their tombs and other edifices show, they employed various methods which, considering the time, show great aptness and intelligence. In explanation of the cover design we will say that the scene is a peep into Pharaoh's bee-yard, showing the keeper studying the bees as they fly about the hives. You will also notice that, chief among the objects shown, is an image of Thoth, their god of wisdom and learning.

This placing of the divinity of wisdom so near to the bees is significant of the fact that, thousands of years ago, the bee was considered useful by man for other reasons than the mere fact that it stores honey.

A MEETING OF OHIO BEE-KEEPERS AT COLUMBUS.

THERE will be a meeting of the Ohio bee-keepers at the Neil House, Columbus, Feb. 3 and 4, primarily to form a State organization and to consider needed foul-brood legislation. It is well known that the Ohio foul-brood law, based on the county plan, so far from being a "howling success" is an unmitigated failure. It was against our better judgment when this bill was proposed; but we finally acquiesced, thinking it was better to get *something* than nothing. But we are firmly of the opinion now that we would be just as well off without any foul-brood law, because now our legislators may come back at us and say, "You already have a law," and possibly refuse to grant us needed relief or even a hearing. Of course, there will be other subjects discussed aside from foul brood.

We call upon all the bee-keepers of Ohio to meet with us, for it is high time we were getting ready to do something. Both foul and black brood are spreading within our own borders, and it is important that we take a stitch in time. We ought not to go through the experience of Canada, New York, and some other States, in which brood diseases got a good start before remedial legislation could be put into practical application. Unfortunately, foul brood is getting a start in several sections of Ohio, and our bee-keepers should go before our legislature, now in session, two or three hundred strong, and then keep after our members until we get what we are after.

It is a shame that Ohio, which probably has larger invested interests in bees and bee-keeping than any other State in the Union, should be in a position where it has no adequate legal means by which it can stop the spread of bee diseases within its borders.

Mr. Henry Reddert, 2300 Schoedinger Ave., Cincinnati, O., secretary of the Southwestern Ohio and Hamilton County Bee-keepers' Association, is acting as temporary secretary. Any one interested should correspond with him at once. Please send him a postal, if possible, saying whether or not you can be present. This is a case where numbers will count heavily in our favor; and we propose that the Ohio State Bee-keepers' Convention go in a body before the committee that would have our bill in charge. The sooner we can act, the better.

On Jan. 31 and Feb. 1 and 2 E. R. Root will give addresses on bees, accompanied with the stereopticon, before the agricultural students of the Ohio State University, Columbus. Possibly there are some bee-keepers of the State who would like to come a day or two earlier to take these in as well as the convention at the Neil House on the 3d and 4th.

OUTDOOR WINTERING; BEES SEMI-HIBERNATORS; SOME THEORIES BASED ON OBSERVATION.

If the present cold weather continues throughout the Northern States, cellar-wintered bees will doubtless fare better than those on their summer stands. Protracted cold spells, when the temperature is only a few degrees above zero, especially if accompanied by high winds, are likely to be severe on outdoor-wintered bees, even if well protected in double-walled hives with ample packing. For such winters a large cellar, where the temperature can be kept reasonably well under control, is undoubtedly better. We are now satisfied that bees outdoors semi-hibernate during extremely cold spells. A large cluster will contract down to a ball no larger than a double fist. The individuals can remain in that condition, and resist a cold spell for a week or ten days, and possibly longer. During this period they take practically no food from the combs. If the cold lasts long enough, the cluster, stiff from cold, may be immovable, and, being out of reach of stores, may die. Many cases of this kind have we run across when pulling the bees apart the following spring. The slight consumption of stores in some instances would show that the bees died in early winter. Around such a cluster will be a row of empty cells about an inch wide. As the bees are closely compacted over empty cells they simply starve. From some experiments we conducted we do not believe cold actually kills bees; but during this period of semi-hibernation, in this chilled condition, they appear to absorb all the food within their honey-sacs or stomachs, and possibly some of the bodily tissue, the same as true hibernating animals.

If the colony is a powerful one, the cluster may be so large that it does not chill clear through. In that case the center of the cluster will move outward to get food while those on the outside of the ball appear to work inward. Such a ball of bees, by reason of the greater number of individuals, maintains in its inside almost blood heat. If it be torn apart on a cold day, the bees inside will fly out and resent the intrusion just as actively as if it were summer and suddenly disturbed.

Then also it appears that some bees have the power of resisting cold better than others. Experience in our own case shows that at least those strains that have been bred for color will not stand as much cold as the dark leather strains that appear to be more nearly the normal type of the race; but if for any reason the type is changed the ability to withstand cold is decreased.

In the foregoing we have attempted to state what appear to be facts based on a series of observations covering a period of nearly 25 years in breaking into clusters of our outdoor-wintered bees. When dealing with a problem of this kind we have to depend largely on circumstantial evidence; but many a man has been found guilty on circumstantial evidence.

STRAY STRAWS

BY DR. C. C. MILLER

"TOBACCO—A nauseating plant that is consumed by but two creatures—a large green worm and man. The worm doesn't know any better."—*Calvin Moon*.

MR. PRINTER, did you take liberties with that last Straw, p. 4, or did I write such foolishness? Just cut out that last line but five: "but we thought the bees could spread the combs."

J. B. MARSHALL, p. 29, I've no experience with flour-introduction. Some across the water report it very successful. Likely bees as well as queens should be well floured. Yield of honey at the time may have to do with it.

TO THE MAN who got up that index to GLEANINGS: Here's my hat off to you. [The entire index was prepared by our editorial force. H. H. Root is responsible for the whole of it except the index for editorials, which was prepared by E. R. Root.—ED.]

T. W. RAUM says that, in his part of Canada, alsike must be thrashed in the field and not in a barn, and some can not stand it to thrash it even in the field. I suppose it must affect the mucous membrane. Has that any relation to the reported effects on horses?

DR. R. MUNSON questions Prof. Bonnier's experiment as to bees marked with talc foraging repeatedly on the same spot, for he says bees are always cleaned off before leaving the hive. But Europeans mark their queens indelibly, and might not talc in some way be applied so as not to be removable?

DON'T BOTHER with an uncapping-machine, because you can uncap with a knife as fast as an extractor will take the combs, says p. 7a3. I don't see the logic in that. If a machine will work faster than the knife, is the time saved of no value for some other purpose? One could at least be reading comfortably between whiles.

JOHN H. LOVELL, p. 9, don't be too hard on writers who think bees get honey from roses when it's only pollen. How many bee-keepers know about it? But here's a question: When bees dig into cultivated rose-buds, barely opened enough to show a little color, what are they after? Hard to believe they are after immature pollen.

A. I. ROOT, while there is a difference of opinion as to whether cereals should ever be eaten raw, your saying "It is all right to assist the teeth in every way you can," p. 31, may be carried further than you intended. Fletcher says chew till food is creamy, and you can't chew much on soups, while Terry protests against sloppy foods that don't need chewing.

THE BEE-BOOK "Der Bien und seine Zucht" has reached its 11th thousand, and its author says, *Deutsche Bienenzucht*, 177, that no other work of the world's bee-literature has ever

reached such a gigantic success. Somehow Pfarrer Gerstung has overlooked Cowan's British Bee-keeper's Guide Book, with its 45,000. Then there's Root's A B C and X Y Z, which is not such a bad success with its 116,000.

UNUSUALLY mild weather up to Dec. 5, the rest of the year fierce, averaging about 4 above. Yet they say the ground is very little frozen. A 15-inch snow-blanket keeps it warm. [It was mild weather here up to the first of December; then it turned cold, and continued so for practically the whole of the month. It began to warm up again on Jan. 1 and 2, but has turned colder to-day (Jan. 3). The ground has been frozen very hard in this vicinity, for the freeze came before the snow. How this may affect clover we don't know.—ED.]

PROF. H. A. SURFACE is good authority; but his figures in *Economic Zoologist* are a little askew for this "locality." He says cellaring may save 10 to 15 pounds of feed per colony; but trouble and expense of preparing for cellar and moving may be more than added cost of wintering on summer stands. My bees are carried in and out without any preparing, and the cost of moving is less than 2 cents per colony. You can't get 10 pounds of feed for 2 cents. But in many cases his figures may be all right. At any rate, if I lived in Pennsylvania I suspect I would winter outside.

THE EDITOR of *Canadian Bee Journal*, page 436, quotes at length GLEANINGS' editorial, p. 588, and gracefully acknowledges Editor Root's arguments in favor of empty cells in the winter brood-nest so convincing that he gives up the battle. Such an unconditional surrender was hardly necessary. I don't know for a dead certainty, but here's what I think: It depends on the space under bottom-bars. With a half-inch space and combs solid full, the bees will freeze to death; with a space of two inches or more they will be all right. In many cases in my cellar bees fill that 2-inch space with the cluster, and I don't believe the bees in that cluster care whether the cells above them are full or empty. [The editor of the *Canadian Bee Journal* and ourselves were talking about the winter-nest when bees were wintered outdoors. Apparently you have in mind cellar wintering. When bees are indoors it is not very important whether they have a winter-nest, such as we have described, or not; but the fact that they will always make and prepare such a nest, if given an opportunity to do so, when wintered outdoors, seems to show that nature regards it as important. Space under the frames for cellar wintering might affect the proposition; but it would only increase the difficulty for outdoor bees unless the frames were very shallow.

In this connection we wish to convey our acknowledgments to Editor Hurley, of the *Canadian Bee Journal*. His candor and evident desire to consider evidence is such that his readers will always have confidence in his writings.—ED.]

SIFTINGS.

By J. E. CRANE, MIDDLEBURY, VT.

One who has the time can not do better than follow Mr. Doolittle's method of reading bee-papers, page 659, Nov. 1.

Page 591, Oct. 1, Mr. Foster suggests the use of scales in the packing room, which is a decidedly good thing. I have found a light spring scale for weighing mail a very good thing for this purpose, and very inexpensive.

On page 587, Oct. 1, it is stated that when there is enough honey-dew to impair the flavor the honey must be labeled "honey-dew." Now, 30 per cent honey-dew would certainly impair the flavor, even if the rest were the choicest clover honey; but would it not be misbranding to label such "honey-dew" when 70 per cent of it is genuine honey? [Yes, in a sense; but the ruling requires putting under the lower grade.—ED.]

CARBOLIC ACID IN SPRAYING MIXTURES.

On p. 587, Oct. 1, mention is made of the use of carbolic acid in spraying mixtures to keep bees from being poisoned. Can any one tell the proportion of carbolic acid used? I should think that, if enough were used to drive the bees away, the blossoms would be injured. Our Vermont law provides that "a person who sprays fruit-trees when in bloom with a solution containing less than three pounds of unslacked lime to fifty gallons of the solution shall be fined not more than \$40.00 nor less \$10.00." Would not the lime in solution be safer for the fruit-grower as well as the bee-keeper? [See p. 778, Dec. 15.—ED.]

DISTANCES BEES FLY.

Some interesting views on bee-flights are given by prominent bee-keepers on p. 587, Oct. 1. Now, while it is probably true that bees often fly long distances, it would seem to me equally true that the bulk of the honey is gathered from near-by sources. A neighbor was telling me, not long ago, how in a yard of bees located near the east shore of Lake Champlain he secured surplus honey from only one of two hives, although the rest of the colonies were just as strong. The only solution was, that the bees from these two colonies flew across the lake, where there was considerable basswood, while the rest of the bees did not.

FULL SHEETS OF FOUNDATION IN SECTIONS.

On page 604 Dr. Miller goes for F. Greiner for objecting to light foundation in sections, and the doctor sums up his reasons by saying that it is his belief that "using full sheets of foundation is of such advantage to the producer that it overbalances several times any disadvantage to the consumer, and hence full sheets of foundation may be

used without any violation of the golden rule." Good! Now, if there is anywhere in the United States a dealer who will pay more for honey in comb built wholly by the bees than he will for that which is built of light foundation, let's hear from him. [Our columns are open for reports of this sort.—ED.]

Mr. Holtermann, page 592, Oct. 1, makes the somewhat startling statement that half of the honey produced in Canada could be sold locally; and, what is more, he is probably correct. At the recent meeting in Albany of the New York bee-keepers this subject was taken up and similar conclusions reached. By the way, that was a pretty interesting convention. Those New York Staters seem to know which side of their bread is buttered, or, rather, how to butter their own bread. And Prohibitionists seemed at the New York convention about as plentiful as bee-keepers. At any rate, Dr. Miller or Pres. York, of the National Bee-keepers' Association, would have felt quite at home; and, besides all this, it was quite a comfort to me when I got home not to have my wife tell me that I smelled of tobacco smoke.

On page 526, Sept. 1, Wesley Foster says, "When a market is developed for cases without glass that will pay as well as for those with glass we shall be effecting a big saving for the producer." Well, how are you going to develop a market until you put up your honey without glass? There are some rather enterprising bee-keepers in Ontario; and, if you will believe it, they have been putting up honey this year in cases without glass and sending to the city dealer right in competition with glass-front cases, and here is what one dealer says of them: "We like them very much, and thus far what honey we have received in them has arrived in excellent condition. They are a great improvement on the wooden glass-front box, and we think that, in due time, they will be used entirely for shipping purposes."

It doesn't look as though it would be difficult to develop a market there for honey in cases without glass. Of course, the case with which this commission man was so well pleased was our improved paper case that we have had the privilege of introducing the past season.

I was in Boston some ten days ago and called on one of the largest dealers in honey in that city. He did not recognize me; and as he had both paper cases of honey and wooden cases with glass fronts containing some beautiful white honey, I asked him how he liked the paper cases. He said he liked them well. I objected to them on the ground that they did not show off honey like the wood-and-glass cases. He replied that it was true; but he said that the honey arrived in so much better condition that it more than made up for lack of attractiveness. He said further that they had found broken combs in about every tenth case of wood.

CONVERSATIONS WITH DOOLITTLE

AT BORODINO, NEW YORK.

FOUL BROOD; HOW DISTINGUISHED—HOW CURED.

While I had foul brood in my apiary during the early seventies, and in two years succeeded in curing the whole so completely that I have had none of that dread disease since (now known as American foul brood), I know that I am not fully up to the times on the foul-brood question. However, as I effectually cured it, and know that the means I used will always cure it, it may not be amiss to give this old plan again. But before telling how to cure it I will tell how to distinguish this disease.

American foul brood is discovered by the apiarist finding one or many cells in a colony containing brood with sunken cappings, and probably a small hole near the center about the size of a knitting-needle, although this small hole is not always present. Upon opening the cells the larva is found stretched out at full length, dead, and of a dark-brown color, dying from one to three days after being capped over. If the larva has recently died it is in shape as perfect as the live larvæ are; but those alive are white, while those dead are of a light-brown color at first, soon changing to a dark brown, and finally to nearly black. Upon touching a dead larva it is found to be a salvy mass, and the whole hive, if far advanced, emits a very disagreeable smell. Some claim this smell is like that of an old glue-pot; but I know of no smell to which it can be compared. The disease progresses, as a rule, very rapidly, and from a few cells in the spring it so spreads that by fall from one-half to three-fourths of the cells will be filled with dead larvæ, the smell of which is nearly if not quite as penetrating as carrion, but not at all like it. Thus what should have constituted an increase died; and as very few larvæ are removed from the cells, the bees grow less and less in numbers until all are gone unless the apiarist comes to the rescue.

I have been thus particular in describing the disease so none need mistake it, and also because there is another disease similar, often called European foul brood, which is not our old foul brood, but what is termed, in New York, black brood. With this last, possibly more larvæ die before the cells are capped over than do afterward, though the caps to the cells where the larvæ die after being capped over have very much the same appearance as the genuine foul brood; but the dead larva is of a yellowish white at first, then a grayish white, and finally brown, while, instead of being stretched out at full length in the cell, it is generally drawn up in a more compact shape, especially soon after it dies. After a while this so dries up that the bees remove much of it; and, if not too bad, when the honey-flow comes on it may

be all removed, the cells cleaned, and the combs filled with honey and capped over, so that, as far as the honey is concerned, no one would know that there had been any disease at all.

Cutting out diseased cells having the genuine American foul brood is of no avail, as the germs of the disease are in the honey. Also, the dead larva never dries up as does that of "black brood," so that all in the hive are removed, although some strong vigorous colonies of *Italians* come very near doing so (if the disease has not progressed too far) on the approach of cold weather in the fall, so that there are only a few cells at that time of the year. However, genuine foul brood is always progressive; and while it may appear to be on the wane in such strong colonies late in the season, yet with spring it comes on again with increased vigor, and always victorious, unless the apiarist is on hand to cure it. This brings us to the curing part.

When a colony is believed to have the genuine foul brood, mark the hive; and if *there are bees enough to ward off robbers* let it entirely alone for three weeks to a month, when it should be examined again just at night if there is any danger from robbers and (if in the breeding season) the genuine will have progressed so you will be sure it is foul brood, while the black brood may simply have held its own, or decreased so as to be nearly all gone. The genuine means *progress* every time, although in some rare cases a colony may hold out over two seasons. As soon as it is determined that the disease is American foul brood, shake or drive the bees into a clean empty hive, render the combs into wax, and *boil* the honey at once before you forget it. Don't set it away thinking you will do it at some other time; for if you do you may repent at a great loss some future day, when, through some mistake, it gets inside, not of one hive, but many of the hives in the apiary. Boiling such honey half an hour or so destroys the germs of foul brood and makes it as good as ever for the bees. If there is plenty of nectar, so there is no danger from robbing, drive or shake off three-fourths of the bees and leave the remainder to care for the brood. In twenty-one days treat again as at first, and a cure will be effected as far as that colony is concerned. After the bees have been in the clean hive long enough for the larvæ to hatch from the eggs laid by the queen in the new comb the bees have built, they can be given foundation, empty combs, or frames of brood, the same as any healthy colony. Burn the hive and frames, or throw them into a large kettle of boiling water, after the foul-broody combs have been removed, and thoroughly boil any thing that may chance to have any of the foul honey upon it. Right here I wish to emphasize the fact that *American foul brood* is in the honey; and if you do this work at a time or in a place so that a robber gets a load of this honey, or carry it on your fingers, knife, or any thing else, to a healthy colony, that colony is doomed.

I have now told you how to cure one hive, so of course you know how to cure a hundred; and if I had a hundred colonies—yes, or twenty—I would go to work in just the way given, knowing that I would succeed; but if I were satisfied that I had only from two to ten colonies in an apiary where from fifty to one hundred were standing I would accept the resolution adopted by a bee convention some years ago, which was this: “*Resolved*, That this convention believes that foul brood is a very dangerous disease, and that we advise all to be careful in experimenting in regard to its cure. If but two or three colonies are affected in any apiary, destroy hives, combs, honey, and all by burning.” I would do this for the reason that I should consider the risk of experimenting, or trying to cure the two or three or ten greater than the value of the colonies.

[On the above, Charles Stewart, one of the foul-brood inspectors of New York State, comments as follows.—ED.]

In both American and European foul brood the intensity varies greatly as to odor. I have seen yards where one could smell the disease before reaching the yard; and then, again, where the disease had lost some of its virulence an odor was detected only by placing the comb close to the nose.

Most of the larvae die just previous to the proper time for capping, in a colony affected with European foul brood.

Diseased colonies should be treated as soon as possible when found; as a delay of a month, especially if the bees are blacks, might cause the loss of the whole apiary. It may be necessary to wait until some honey is coming in, as it would be wrong to treat them when robbers are about.

I have seen so much trouble come from feeding back honey taken from diseased colonies, even though it was boiled, that I have always advised against it except in the hands of an expert.

After disinfecting thousands of hives in years gone by, we find we get the same results without this work. The brood-frames are boiled as much to clean them as to disinfect. Bees can be treated right in their own hives, taking away every cell of comb and replacing with frames of comb foundation. Formerly it was thought necessary to shake again in three or four days; but we find the average number reinfected is about one in ten, so we prefer to watch these colonies treated, and treat the tenth one rather than treat all of them a second time. If I found but one or two colonies in a large apiary affected but slightly I might destroy them at night when all bees were in the hive; but if badly affected I would treat them, feeling certain that other colonies near them would soon show the disease and would have to be treated. That is, if a colony had the disease long enough to show it badly, others near it would be almost certain to contract the disease.

BEE-KEEPING IN THE SOUTHWEST

By LOUIS SCHOLL, NEW BRAUNFELS, TEX.

PROSPECTS IN TEXAS FOR 1910.

Prospects are good. It has rained bountifully in most parts of the State at least, and we are expecting the return of one of those good old-fashioned Texas honey-yields next season. Owing to the lateness of our fall, and almost a total absence of cold weather until in December, several sources such as cotton, broomweed, and some minor plants, yielded some nectar and pollen right along until the cold weather cut it off. This gave the bees a chance to fill up their brood-nests and rear a lot of extra brood. These young bees will be most valuable next spring, and hence the colonies are in the best possible condition for winter. With an early opening of spring next year the bees should be in fine shape for any honey-flows, no matter how early they come. However, the spring may be late, as it has been unusually warm so far this winter.



ALFALFA HONEY IN TEXAS.

As yet there is very little of it produced since the area planted in alfalfa is not yet very extensive; and in many places where it is planted the atmospheric or other conditions that seem to exist cause it to yield no nectar. The most luxuriant growth of alfalfa, in large fields within a mile of an apiary, have been found destitute of bees, while in other parts of the State the alfalfa was visited well and resulted in some surplus honey. These differences have occurred with alfalfa with and without irrigation, and upon several occasions in the same fields—that is, at certain times bees worked on it and at others left it entirely alone. This is an important subject for scientific investigation, especially since a great number of people are inquiring more and more as to whether alfalfa is good for bees in Texas. It's up to our experiment stations.



BULK COMB VS. SECTION HONEY.

That description of Wesley Foster's workshop, p. 725, gives one the “shudders” if he is not used to such things himself. Culls still unsold in November; No. 1, 2, and 3 grade and close grading; scraping separators and section-holders; twenty to thirty thousand sections to fold and starter; broken tins, cracked section-holders and separators to repair; besides the selecting and discarding of daubed and stained sections that have been on the hives but not finished, etc. All this makes us Southerners wonder whether section-honey bee-keeping is worth while. To this must be added the extra care of the bees in the early spring toward getting them strong enough so they *can* work in the section-supers; later, coaxing them into these supers so they *will* work in them; and even after that they must be coaxed to finish the

sections properly and to fill each individual section just so. First the colonies must be *stimulated* and the hive *expanded* to obtain rousing colonies for best results; this obtained, the hives must be *contracted* to force the bees *up*; but it generally forces them *out*, as swarms; and this must be checked after the bee-keeper has brought them up to this point. Finally, it all depends on how well one succeeds with the above whether he makes a crop of section honey or not. If he makes a crop, then we come back to the grading-rules, etc., alluded to above, so that, taking it all in all, we wonder why others are still following along an old rut—that of section-honey production, which is the most expensive way of producing honey. In Texas we abandoned this method long ago for something better and more profitable—the production of bulk comb honey. It is easier to produce, it yields larger crops, sells better, and results in the most dollars.



AN AUTOMOBILE FOR OUR WORK.

A thousand colonies of bees in twenty or more apiaries, scattered from a few to nearly two hundred miles from home, and only one assistant as help, has brought up the question of getting around from one place to another as fast as needed; and how to solve this question is the subject now before us for the coming year. While we have managed to do nearly that much heretofore by the use of several teams of horses, it will be quite out of the question thereafter if our plans for still more extended operations develop.

The automobile may be the only thing to solve the problem; yet we realize that it is expensive, if a good one is to be used, and the cheaper ones, so far, are not as reliable, especially during the height of the season. We have studied the many different makes, and although we have not yet found just what we want, the coming season will find us flying (?) from yard to yard in a "machine." We figure this way: If we depend on horses we must purchase two more in addition to the one horse and two mules we are now using. Figuring the cost of these, extra cost of a new lot and stable (for we live in the city), their feed and extra care, morning, noon, and night, we encounter quite an expense in a year. Besides, they eat whether at work or not, and need the same daily attention. Would they not in the long run cost more than a machine? This is not all. If we take a trip to one of our yards 20 miles away it takes about 4 hours to go and 4 to return, leaving us 2 hours for work out of a ten-hour day; and on a hot summer day not only the horses but the persons are tired out from the long weary drive. With an auto just the reverse is true, a two-hours' drive and eight hours of work, also the enjoyment of the recreation obtained on the way. These are not theories, for we have had some experience in this matter. We are sure that, with the use of a good reliable machine, more than twice as many colonies

of bees can be managed by one man, and that, as soon as we have better perfected automobiles or motor-vehicles, and the prices are lower, more bee-keeping will be done *à la* automobile. The question now is, "What kind of machine should the bee-keeper adopt under present conditions? Who can advise us?"



THE TEXAS PEOPLE AND ALFALFA HONEY.

Owing to the fact that very little alfalfa honey has been produced in Texas, the people, as a matter of course, have not become used to its flavor. Hence its sale in many markets, into which it has been shipped from Colorado and other points of the west, has been comparatively slow, and in many cases some trouble has been experienced on the part of some of the purchasers as a result of its unfamiliar flavor. Many are the complaints made regarding this honey, the main one being that it is adulterated—not real honey; others that it is spiced. Some people can not stand the flavor, hence can not eat it as they do our real Texas honey. The most unique description given of alfalfa honey, and that by numerous persons, is that "it is too white—hasn't any real honey color to it, and is strongly flavored with cinnamon." Many purchasers will not buy alfalfa honey a second time, and would not the first if they had known its flavor.

Our experience at the fairs annually has put us in closer touch with people of this kind, and it is amusing to hear the different complaints, which are only a lesson to us, and show the necessity of more education to the general public on these matters.

That experienced bee-keepers themselves should have trouble in the respect above mentioned would seem ridiculous, but it is a fact. In our exhibits a year ago a certain bee-keeper sent some section honey of as fine white quality as we have seen. At the close of the fair this honey was left at the secretary's office together with three other and similar packages of section honey. These were changed about in some way, and our bee-keeper, without knowing it, got a case of the others when the honey was returned to him. The sections being the same style in each case he did not recognize any difference until it was put on the table. It was hurried back to the secretary's office, with the declaration that it was not his honey—that this was "adulterated, and flavored with cinnamon," and he desired *his* honey back. The matter was referred to me, and I was asked what had been done with this man's honey. Investigation later showed that his honey had been taken by another party, and alfalfa substituted by mistake.

POLLEN ABOVE EXCLUDERS.

On page 690, Nov. 15, Dr. Miller remarks that he puts combs with pollen over an excluder, and it is not long before they are cleaned out. Over the excluder is the place where I am bothered the most. I have to clean out a big lot every spring, from supers. Bees fill a lot of frames with pollen where I want honey stored.

Rancocas, N. J., Dec. 18.

S. B. HUSSEY.

GENERAL CORRESPONDENCE

THE CONTROL OF BEE TERRITORY.

At the Present Time No Bee-keeper has a Legal Right to his Territory; Is a Moral Right Sufficient?

BY DR. C. C. MILLER.

Some time ago Mr. J. L. Byer threw out a sort of challenge for me to define my position with regard to the matter of occupying bee-territory, with a slight intimation that there was something not just right about my position. Mr. Byer is a man whom I hold in high esteem, and I should like to justify myself in his sight; but I have delayed and hesitated to reply, partly for want of time, partly because Mr. Byer was just a bit vague, and I didn't know just where to take hold, and chiefly because I did not feel sure the time was ripe for any discussion of the matter.

Years ago I made the attempt to advocate the idea of having such legislation as to allow each bee-keeper to have control of a certain territory, so far as bee-keeping is concerned. I do not know whether any one agreed with me in thought, but certainly, so far as I remember, no one agreed with me in word, for no one publicly agreed with me, and I stood entirely alone. All who expressed themselves at all on the subject opposed me, notably my good friend Prof. A. J. Cook.

If I thought there was no change in sentiment I would not consider it worth while to occupy space for a single line on the subject. But I know there has been change, at least change as to *expressing* opinion. In Colorado, if I am not mistaken, a rather emphatic resolution was passed to the effect that a man who would encroach on territory already fully occupied by another was not quite what a good man should be. In the Imperial Valley the bee-keepers have banded together in making common cause against such intruder in such a way as to roast him out. In far-off Australia they have gone perhaps to the extreme of the desired limit; and a man by paying a small sum may plant an apiary with the assurance that no one else may locate a hive within a certain limit.

I think there is a general belief that a man occupying territory has a certain priority right in that territory—a moral right; but with regard to a legal right there is entire apathy. As nearly as I understand it, the belief is that there is no need of any legal right, or that if there is any such need it is not possible to obtain it. I will not discuss just now the latter point. But I want to repeat with all the emphasis I can command what I have said so many times, that if ever bee-keeping is to stand upon a firm basis like other lines of business, there must be such a condition of affairs that the bee-keeper shall feel just as secure against interfer-

ence as the stock-raiser who is assured by the law that his fields shall be occupied by his cattle and by his alone.

That, friend Byer, is the foundation-stone, the keystone of the arch, and all the other figures of speech you can imagine as to any views I may hold. If you will show me I'm wrong in that, I need take no time to tackle any other point. And because I hope it may do just a little good in bringing about the day that I think will some time come, although probably not in my time, I ask a place on the stage for a while, Mr. Editor, to speak my little piece.

There are some—good men too, like W. M. Whitney, who think any man has a right to plant an apiary wherever he can get enough square rods of ground for its occupation, without any regard to surrounding bee-keepers. Granting that they are right, that makes it all the more important that there should be some way whereby, without doing injustice to others, I may be able to obtain control of a certain territory, for they take away all moral right, the only right that any one can now claim to a given territory.

Others, perhaps, believe heartily in priority rights, but think there is a strong enough moral feeling in the minds of all bee-keepers to make these rights respected, so that no legal right is necessary. Such people need to be told that these rights have not always been respected in the past, and there is no reason to believe that they always will be in the future. If they have always been respected, why should vigorous resolutions have been passed against offenders? why should Imperial Valley bee-keepers unite to punish offenders?

On page 673 Morley Pettit says that infringing on territory so as to overstock it is a boomerang. It is. Suppose a man plants an apiary in a locality I already occupy fully, he will suffer from the boomerang in the way of failure of crops; but how about my crops? Don't I suffer as much as he? And is it the square thing thus to oblige me to pay for his tuition?

Very pertinently Editor Root asks, p. 674, "How are we going to educate him so that he will be 'wise' enough not to locate there in the first place?" Even if you could do so, there's room for a whole lot of trouble. If Smith has a single colony, it would hardly be the fair thing for him to warn off all who should want to locate within a mile or two of him. Suppose he has 10 colonies, it would be much the same. Suppose he has 75, and he thinks that any increase of numbers would result in loss instead of gain. I think differently. I think 100 colonies would find support on the same ground. I plant an additional 25 colonies close beside him, so as to save the nectar from going to loss. If he is right in his view, then he is suffering a real loss from my intrusion. But who can decide? I've been more than 40 years trying to learn how many colonies my locality will bear, and I don't know yet. If he had a *legal* right to the territory, then there could be no trouble.

Suppose another case, and not an uncommon one. Suppose Jones has found a favorable locality where a hundred or more colonies can easily be supported in one apiary. At considerable expense he moves to that locality, starts in with 25 or 50 colonies, and expects to build up to 100 colonies. Claiming that the field is not occupied, I plant 50 colonies right beside him. Pretty rough on Jones, but I insist the field was not overstocked, and who is going to tell me I've no right there? There's no such conflict about a cow-pasture; and why should there be as to a bee-pasture?

There are other ways in which trouble may come—in which trouble has come. I tell you, good friends, the present loose way has never been satisfactory, and never will be. I suppose I've had less interference than the majority, but I'd give a fair price to-day to have absolute control of a given territory. I suspect there isn't a possessor of 50 colonies anywhere in the land who does not feel the same way, although it may not be popular to say so. Is there any good reason why a man who makes his living from bees, or part of his living, should not feel just as secure in his field as the man who makes his living from cows? Just keep this in mind: *No bee-keeper in this land has a legal right to his bee territory.*

Marengo, Ill.

EUROPEAN FOUL BROOD.

The Cure à la Alexander.

BY C. F. BENDER.

Dr. Miller's excellent articles on European foul (or black) brood remind me that perhaps I owe the bee-keepers an article on this important subject. I am glad to see that the doctor has tried the Alexander method. Shaking on foundation has been recommended so persistently that many of us hardly realize that there is another and a better remedy.

My experience of the past seven years has convinced me that there are only two methods of treatment worth mentioning for either form of foul brood—the shaking plan, with or without starvation, and the method of dequeening for three weeks and requeening with hardy stock. For the American form the dequeening method is useless; for the European form it is safer and better than the foundation treatment.

I had practiced the Alexander plan, without knowing it, for two or three seasons before it was put before the public. The way of it was this: In the summer of 1905 I had begun to run short of bees from repeated losses. As most of the affected colonies were strong I shook them on foundation and set the brood in a new location to hatch out, intending to shake the combs again at the end of three weeks, and form new colonies with the young bees, thus treating them and getting increase at the same time. When the brood had all hatched out those combs and

bees looked so clean and smelled so sweet that I decided to requeen them, and try them another season. They stayed healthy; but as I had requeened at the same time with different stock, I hardly knew whether to attribute the cure to the stock or to the dequeening. To be on the safe side I kept on doing both, and still think that both are necessary.

Since the Alexander articles came out I have been following his plan as a regular routine. About the first of May I begin examining all weak or otherwise suspicious colonies. When one is found with dead brood the queen is promptly killed, even if that means the probable loss of the colony. Toward the last of May the queens, instead of being killed, are used to requeen the earlier cases, though only temporarily, as they are usually killed later, and young queens of other stock substituted. The doctor tells us not to attempt treating weak colonies, and he is entirely right; but he does not go quite far enough. Instead of uniting before treatment we must unite before they become diseased; that is, we must never allow a weak colony on the premises.

"To bee or not to bee," that is the question to the novice who has a serious outbreak of disease. It has been such an important question to me that I think I have been rather careful in making experiments; I know I have been careful in keeping records; and these same records have taught me to drop entirely the nucleus method of making increase. Sixty per cent of colonies built up from nuclei, though apparently healthy the first year, will develop the disease the following season. So I think best to make all increase from natural or shaken swarms.

After this disease has once started in an apiary there are three principal ways in which it spreads: By exchange of combs, by robbers, and by nurse bees entering the wrong hive after taking a flight. Of course, all exchange of combs should be stopped at once. Strong colonies and Italian stock will control the robbing if one is at all careful about opening hives during a dearth of honey.

I am a little diffident about speaking of the spread by nurse bees, because I have never heard any one mention it as a matter of any importance. But the fact seems so clear to me that I will tell you how I came to notice it. My hives are arranged in pairs, mostly facing south, with six to ten feet between the pairs. In April, 1906, the first case of disease occurred in a left-hand hive toward the front of the apiary. About two weeks after I had discovered this case, two more appeared in hives immediately behind the first, both on the left-hand side of the stand. The cases kept coming in regular sequence until there were ten, all except one on the left side of the stand, forming nearly a regular row across the apiary. I could see no explanation except that it had been carried by bees entering the wrong hive, most likely by nurse bees which had been caring for the brood in the infected hive, and im-

mediately began the same work on entering the healthy one. Since then I have seen the same thing often, though not so strikingly. The remedy, of course, is to spread the hives as much as possible, and to face them in different directions. But I think it is perfectly safe to keep them in pairs, as I never knew bees to mistake right and left.

An odd thing is that robbing infected combs does not always cause the disease in the robbing colony. Three years ago colonies number 34 and 59 went partners in robbing out a stack of diseased combs. Neither one has ever shown any dead brood. I have reared queens from both, hoping to get stock that was more or less immune, but am not sure that I have it.

Two things the novice is always anxious to know when he finds dead brood; first, what disease is it? second, whether it is going to put him out of business entirely. Regarding the first, I think the roping test is a sure one. Twist a toothpick in the oldest dead larva you can find; pull it out; and if it draws a thread, call it American foul brood. If it does not draw a thread, and smells sour, call it European and kill the queen.

Regarding the second question, whether it will put him out of business entirely, no; not unless he wants to quit. He can save eight colonies out of ten by proper treatment. In the case of European foul brood I think about three out of the ten would get entirely well in the course of time without treatment of any kind. But in the mean time they would be worse than useless, and would spread the disease to every other colony within flying distance.

Newman, Ill.

PAINTING HIVES.

**What Paint to Select, and how to Mix;
Complete Instructions from a Prac-
tical Painter.**

BY C. G. HULICK.

The part that usually gets the amateur painter into difficulty is the buying and mixing of paint. My experience as a house painter, from 1896 to the present, shows to me that there is no better and cheaper paint than pure white lead and pure raw linseed oil. The purity of these two parts is essential to a durable paint. Most people do not know that pure oil is the basis of good paint. Linseed oil is the only good oil known to the trade. Pure raw oil *boiled* in a kettle has a much "heavier body" than the so-called boiled oil, of which a circular issued by a prominent Chicago paint-manufacturing firm tells us is heated only to near the boiling-point, a dryer added, and sometimes other adulterants. White lead and oil are not hard to get mixed if only a small quantity of oil is added at a time.

To mix the ingredients, lift some lead into a bucket and stir, if possible, before adding oil; then pour in half as much oil as there is lead, and stir until thoroughly mixed. Add

half the quantity of oil as before, and stir. Repeat until thin enough to spread well but not run. Then put in from a half to one pint to the gallon for winter painting, and one-fourth to one-half pint for summer, of Japan dryer when raw oil is used.

This is where I differ with F. Dundas Todd, who does not use dryer. In this climate, paint mixed with raw oil would wrinkle if used in cool or cold weather, and that is where many of us have time to put together and paint the hives we use. Japan dryer causes the paint to dry from the wood out instead of skimming over and wrinkling with the cold. Raw oil dries very slowly in cold weather, page 657, 1909.

For hard pine knots and pitchy lumber, use turpentine in the first coat—one pint to the gallon.

Painting hives adds durability and neatness; keeps ants away; keeps water out, etc. This spring I bought some dovetailed hives, two years from the factory, that had only one coat of paint. When I began to paint them I found the bottom-boards almost gone, rotten inside, as well as badly cracked all over, proving to me that hives should be well painted.

Why do Dr. Miller and Mr. Doolittle not paint their hives? Why should we let hives waste by decay when paint will preserve a hive as long as a house? The advancing price and decreasing quality of lumber makes the strongest argument for preserving the hives we have. I paint the dovetails, rabbets, and joints of all bodies, covers, bottoms, and supers, and give them three coats of white lead and oil after nailing. We have enough moisture here to use up an ordinary hive in about two years, unpainted. Do not the bees deserve the most comfortable moisture-proof house to live in that we can give them? Buying bees in old, rotten, and shaky hives makes one look with much pleasure on sound well-painted hives.

Ainsworth, Iowa.

[We are glad to indorse all of these suggestions. There is nothing better than a pure white lead and linseed oil. In this connection we wish to caution our readers against using cheap ready-mixed paints. The pure-food and drug act does not prevent wholesale adulterations of any article of manufacture not calculated to go into the human stomach. The consequence is, there are but very few brands of ready-mixed paint that are pure; and even some that are contain too large a percentage of zinc. While zinc is good for inside finished work, it has a tendency, when mixed with white lead for outside work, to scale, and hence after a time the house looks flaky. Even after it is repainted it looks badly, and, what is worse, some of the old scales will flake off, carrying with them the new paint. A pure white-lead paint, after it has been on wood a good many years, will chalk like powder. A second coat of pure lead and oil right over this will combine with the lead pigment from which the oil has dried out, and make a good new smooth finish.]

If one can not be sure of getting a ready-mixed paint that is pure he had better buy pure white lead and oil and mix them as directed in this article. But perhaps the reader would like to know what lead paste *is* pure. There are several good brands, among which we might mention Morley, The National Lead Co., and Sherwin & Williams.—ED.]

AN APPEAL TO NEW JERSEY BEE-KEEPERS.

BY ALBERT G. HANN.

On Dec. 18, at the last annual meeting of the New Jersey Bee-keepers' Association our foul-brood bill was thoroughly discussed, section by section, and approved; and the members present determined to do all they can to get the bill enacted into law at the present session of the legislature. But there remains much to be done by all other bee-keepers in the State. In the first place we should like all other members who have not done so to send us their annual dues of 50 cts. for 1910, and ask for a printed copy of our bill. Then we want all the other readers of GLEANINGS to join our association, send us the annual dues of 50 cts., and get a copy of our bill and enjoy the privileges of membership.

If there are any readers who do not see fit to join us we should like to have them write us, enclosing a stamp, asking for a printed copy of our foul-brood bill, and tell us if there is any disease among their bees, or if there are any careless bee-keepers around them, or if there are any box hives.

We are asking the readers to join our association, for, the larger our numbers, the greater prestige it will give us in asking for a bill. If only a few ask for this bill it will look as if they were trying to create an office for one of them. Then the association needs more funds to carry on the work properly. There is considerable expense connected with getting a new piece of legislation enacted like this, such as postage, printing, telephone fees, and traveling expenses. It is not fair that this should be borne by a few bee-keepers, as the law benefits bee-keepers throughout the whole State.

By the time you read this, our bill will have been introduced. We want to urge every reader of GLEANINGS to write to their senators and assemblymen from their respective counties to support our bill. Write a short business-like letter; explain briefly what foul brood is—that it is a germ disease; how it spreads by infected honey; what a danger the careless bee-keeper is, and how our bill will help eradicate the disease. Compare our interests with the dairyman's interests, and explain that the bee-keeper's property has just as good a claim to protection against contagious diseases as the cattle-raiser has to protection of his herds against contagious diseases by legislation. We have laws protecting cattle against contagious disease. Mention further that California, Colorado,

Idaho, Michigan, Nebraska, New Mexico, New York, Ohio, Texas, Utah, Washington, and Wisconsin have foul-brood laws; that Connecticut and South Dakota passed foul-brood laws last winter, and other States are trying.

We should like to ask especially those interested in bees in Essex Co., Hudson Co., and Union Co., to see and to write to their assemblymen and senators from their respective counties. Those three counties contain a majority of the members of the assembly, and therefore we must get them to favor our bill. *Without the favorable action of the assemblymen from those three counties our bill will fail.*

I trust that this will be our last effort, and that we shall succeed, as, indeed, we will if each bee-keeper will do his part.

Join our association now.

Pittstown, New Jersey.

VENTILATION BY RAISING THE HIVE-BODY OFF THE BOTTOM.

By its Use all Loss can be Prevented in the Winter, and Almost all Swarming done Away with in the Summer.

BY A. A. CLARKE.

I have been interested in the discussion on the subject of ventilation of hives by J. A. Yeoman, page 638, Oct. 15, and the article by the editor on page 504, Aug. 15th issue. This confirms what I wrote in GLEANINGS, page 970, July 15, 1907, when I sent my method of ventilating in the summer time. I have been using a similar method of ventilation in the cellar, as that is where we are compelled to winter our bees in this latitude. I have adopted this scheme of ventilation as being the most practical and sure way of wintering for our uncertain winters. I am after results, not theory. I have demonstrated that, with sealed covers, plenty of stores, and young queens combined with proper ventilation, there is no fear of weak colonies in the spring. When my bees are put into the cellar every hive is weighed; then the regular entrance is placed next to the wall, and the body of each hive is loosened from the bottom-board, and, with the hive-tool, is pushed backward until the same width of entrance is secured at the back of the hive. My cellar is so constructed that I can keep the temperature within one or two degrees of 45 continuously until the bees are put on summer stands. I have not lost a colony since I have first used this method; and last spring, which all know was a severe one on bees in this locality, my bees were as strong when removed from the cellar as when put in; and they were all strong enough to gather a nice surplus from fruit bloom and dandelion. Perhaps it will be as well for me to say that I have very little time during the season to attend to my bees, and that is the main reason why I had to study out some plan to get the best results in honey from them.

I am so situated that I have to drive five miles all the year round to my place of business, rain or shine; and when it is time for bees to leave the cellar it is my busiest time also. Since I have adopted the ventilation outdoors and in, I have not had ten swarms per year from 100 colonies; yet I run my bees chiefly for comb honey. When very hot weather comes I use the wedge as illustrated in GLEANINGS some two years ago. When it gets to be 100 in the shade, as it does here most summers for a time, each hive is raised at the back with a wedge the same as at the sides. This appears to be all the ventilation needed for the bees to keep on working, no matter how hot it gets. If this ventilation is allowed to remain for the rest of the hot weather, according to my invariable custom, the bees will use it as an entrance, providing they are well supplied with a strong working force of bees. Then if enough room for storage above is given them they will not swarm—at least that is my experience. Always let this ventilation at the back remain until there is danger of robbing, then go along and remove the wedge.

Le Mars, Iowa., Nov. 24.

THE CHICAGO-NORTHWESTERN CONVENTION.

BY R. F. HOLTERMANN.

The above association held its thirtieth annual meeting at Chicago recently with G. W. York, the president, in the chair. The convention in one respect was like our recent Ontario meeting. It spent a very considerable time over the question of foul brood (American and European), and the convention was unanimous in its desire to secure legislation for the State of Illinois, by means of which it could secure authority for the inspector to examine colonies of bees, even if contrary to the will of the owner; also to authorize the inspector to destroy badly diseased colonies. It appears the State has, up to the present, no such law.

TREATMENT OF EUROPEAN FOUL BROOD.

Doctor Miller gave the following condensed treatment of European foul brood: Brush from all but one comb of brood the bees. Allow this comb to remain in the hive, putting beside it two empty combs. When eggs are found in one of these combs take out the original comb. Take away the queen; ten days later destroy all queen-cells and give the colony a virgin queen. Dr. Miller recommended making colonies with European foul brood very strong. Mr. Cavanaugh suggested shaking the strongest diseased colonies, giving the brood to weak diseased stocks, strengthening them, yet not increasing the number of infected combs.

BETTER-KEPT BEES.

Is it better to keep more bees or to keep fewer bees better? This was a question before the convention. A member said, keep more bees and keep them better. It was al-

so stated that badly kept bees are a menace to the good bee-keeper on account of the foul-brood danger.

W. Z. Hutchinson stated that the idea that many had (that the one having many colonies of bees must neglect them) was not so. He had traveled about a good deal, and found that, when a man had many colonies, he was more likely to look after them, his attention is drawn more to them, and he becomes more interested in that line.

POLLEN IN SECTIONS.

A method was given to remove pollen from sections. Take a toothpick, break down the comb about the pollen, and break into the pollen and return the section to the hive. The bees will remove the pollen.

SIZE AND KIND OF HIVE.

This question came in for consideration. One who had several hundred Heddon divisible-brood-chamber hives, and had used them for many years, stated that he found the divisible feature a weak point in outside wintering. What next? Here I had almost become a convert to the divisible-brood-chamber hive because I had been told and believed that the above was a strong feature; also that bees in such a hive would build up better in spring when a man of long and wide experience states the first is not correct, and Mr. Townsend, in GLEANINGS, states that the bees in such a hive do not build up as quickly in spring. Such divergent conclusions only go to show that a government apiarist, who is only a man after all, had better leave tests along such lines alone, for in that capacity his experience must be very limited compared with men we know of who come to diametrically opposite conclusions. We do not find other departments testing and giving out orders of merit in reapers, mowers, plows, manure-spreaders, etc. The bee-keepers, in my estimation, can get better value for the money expended in having the governments—federal, dominion, state, or provincial, carry on experiments where equipment and time needed make them beyond the bee-keepers' reach. The number in favor of the large hive showed an increase.

A question was propounded as to what constitutes an eight or ten frame hive; and to settle this question for all time a vote was to be taken. Some claimed that, if the super was used as a brood-chamber, then the number of frames in the lower story no longer constituted the size of the hive. The convention voted contrary to this idea.

HOW MUCH WAX IN TEN LANGSTROTH COMBS?

In reply to this question it was stated that N. E. France had secured 3 lbs. of wax from ten Langstroth combs. Holtermann stated he had no doubt this was correct, for he had experimented in this direction, weighing the wood frames, then putting 2½ oz. of foundation (a full sheet) in each frame. Upon weighing the combs after completion he had found that the bees had added 2½ oz. of wax to the foundation in each comb, thus completing it. This would make a total of 3 lbs. 2 oz. of wax to a set of ten combs.

COLOR OF BEESWAX.

Quite a discussion took place on the above subject. One member was prepared to swear that the bees secrete yellow wax when working on the goldenrod; but when the convention wanted to know upon what evidence he was prepared to swear, he did not give a very satisfactory answer. The point was, did the yellow color come from the pollen after the scales were secreted? Some one stated that the wax would be according to the color of the honey. This was easily disproved, from the fact that buckwheat honey gives white wax. Dr. Miller stated that, contrary to some high authorities, he found that wax is sometimes, at least, quite white. He had taken virgin comb and melted it into a small cake when it was still white.

Brantford, Canada.

A BIBLIOGRAPHY ON BEE-KEEPING.

BY DR. E. F. PHILLIPS,

of the Bureau of Entomology, Washington, D. C.

It may be stated with little fear of contradiction that we all write too much, not only concerning bee culture but on all other subjects. It is impossible, however, to stop the increasing current of bee books and pamphlets, and articles in bee journals, and it becomes necessary to devise some way to keep track of what is written, not only to aid in keeping up to date on the subject, but to prevent the repetition of work already done and to check up various claimed discoveries. The need of a bibliography on bee-keeping has been very strongly felt in connection with the work of the Bureau of Entomology on apiculture, and to satisfy this need at least partially such a bibliography has been begun. I shall here attempt a brief description of it for the benefit of those who may desire to start something similar.

All records are made on cards (linen ledger paper) 12.5 by 20 centimeters in dimensions (approximately 5 by 8 inches). This size was chosen rather than the 3-by-5 inch cards usually used in libraries because of the need of space for abstracts and notes, and also because cards of this size are used for the records and notes of the office, and the subject bibliography cards can thus be arranged right with our own notes. All reference cards are made at least in duplicate. One set of the cards (blue) is arranged in alphabetical order under the names of the authors, and another set (yellow) is arranged according to the subjects treated. In case an article treats of two or more subjects, as is often the case, separate yellow cards are made for each subject. In the case of books devoted exclusively to bees, the subject catalog is not attempted, for it would be an endless task. In all such cases the yellow cards are filed in the drawer containing the book catalog. For example, Dr. Miller's "Forty Years Among the Bees" is cataloged thus:

Miller, Charles C., M. D.,
1903. *Forty Years Among the Bees.* Chicago: George
W. York & Company; 327 pp., 111 text figures; 13x20 cm.

The blue card containing this record is filed under Dr. Miller's name, and the carbon copy on the yellow card is filed in the book catalog under 1903. Both cards are stamped "Book," so that in case either is removed from the files it can easily be replaced properly. The size of the book is given in centimeters rather than to mark it octavo, since such designations vary greatly in their use.

In the case of articles in journals the name of the journal takes the place of the publisher in the case cited. Anonymous publications are filed in chronological order in a separate place. All articles by one author are arranged under his name in chronological order in the authors' catalog.

In some cases references are obtained which do not indicate under what subject the yellow card should be filed, in which event the two cards are fastened together and filed under the authors' catalog until the article can be looked up.

In case an article is of enough value to warrant an abstract or translation (in the case of articles in foreign languages) these are either written on the yellow (subject) cards or on thin paper cut to fit envelopes which are just the size of the cards. On these envelopes is written the bibliographical reference, and they are filed under the proper subject. For example, in our bibliography on disease we have translations of all the important foreign papers on this subject, and numerous abstracts and notes on the subject cards where the articles are of less importance. In this way the subject catalog becomes an important storehouse of information.

This bibliography was begun about two years ago, and now contains between 16,000 and 18,000 titles. The Drory bibliography has been copied complete; the DeKellar bibliography, which is very inaccurate, has also been included; but the titles and references are corrected in many cases. The Taschenberg catalog of articles in journals has also been included as well as numerous smaller lists. In each case the source of the reference is stamped on the card, so that any errors can be traced to the proper source. Where the references are made directly from the books or articles, the cards are stamped "Verified." The available bee journals are now being cataloged. This is an enormous task, but is proving of great value. Numerous articles not directly on bees, but which are used in our work, are also included in the bibliography.

All of this indexing means lots of work for the winter months, but we are fully repaid by the ease in finding literature that we need. Unfortunately these cards are not available to other workers in bee culture, but will be freely accessible to any one desiring to consult them in Washington. Naturally they can not be sent away from the office.

To publish such a bibliography would be very expensive. It is constantly growing, so that it should be printed on cards so that new titles could be inserted in the proper



A sample of how the eggs and cocoons of the bee-moth are deposited on wood. Sometimes the wood is grooved or eaten out. The illustration fails to convey the real filthiness of the mass.

place. Perhaps this never can be done; but at any rate we shall aim to make it a bibliography which will serve our purpose in the work of the Bureau, and it may be of use to those outside who are in a position to consult it from time to time.

Bureau of Entomology, Washington, D. C.

MOTHS DESTROY ENTIRE COLONIES.

BY C. E. MILLARD.

I have 40 colonies of the common American brown bees. Since July 1 the worms have destroyed seven hives, and by next swarming time they will no doubt destroy the entire lot unless I can find a remedy.

If you think that another breed of bees will be any advantage I will change stock. To be sure, I do not see how this would help; but I refer the matter to you. What I have are doing well except for the worms. But they are something fearful. I send you a sample of the worms and also a piece of a section, that you may see the form of the pest and the nature of their ravages. It hardly seems possible that, in so short a time, there could have been so many worms, and that they could actually cut away the *solid wood* as they have done. Parties who have seen the condition of things are amazed.

Ravenel, S. C.

[The whole trouble is due to lack of care, especially among queenless colonies. Since the Italian bees have replaced the old-fashioned black bees, most of the trouble with moth-worms has disappeared. Your easiest remedy will be to destroy your old black queens and get full-blood Italians. As soon as they hatch out they will go to work cleaning out the worms. Meanwhile overhaul all your hives and cut out all of the worms and cocoons, and do a regular cleaning-up; then follow it up until the young Italians get out and take the job off your hands. Probably

the moth-worm has been allowed to develop to an unusual extent in your locality. Get other bee-keepers around you to turn in and help get rid of them. A very little earnest work every few days will get them entirely out of your hives and out of your apiary. We had lots of experience along this line, years ago, before we had Italian bees. See editorials.—Ed.]

PERFECT COMBS WITHOUT FOUNDATION SPLINTS.

Foundation in Brood-chambers Should be Drawn Out Only by Weak Colonies; the Super the Proper Place for Comb-building in Strong Colonies.

BY G. C. GREINER.

Whenever the subject of foundation-splints has been discussed in our bee-periodicals I have been wondering why it was necessary that these splints had to be used at all. Mr. Green's article on page 562, with its various theories and suggestions, gives this matter a new impetus, at least with me. It induces me to offer a few remarks on this subject. I do this, not for argument's sake nor to invite any controversy. I have no time to waste for that purpose, but I wish to present a few facts along this line.

After reading Mr. G.'s article I examined a dozen or more drawn-out combs from the brood-nests of as many different colonies and the same number of drawn-out combs from my extracting supers, but failed to find any stretched combs with elongated cells, as Mr. G. describes. I knew the result quite well before, but I did it to make doubly sure I did not misrepresent or make false statements. It does not seem possible to me that different localities and climates could produce such contradictory results; but I am convinced that the difference is all in the management.

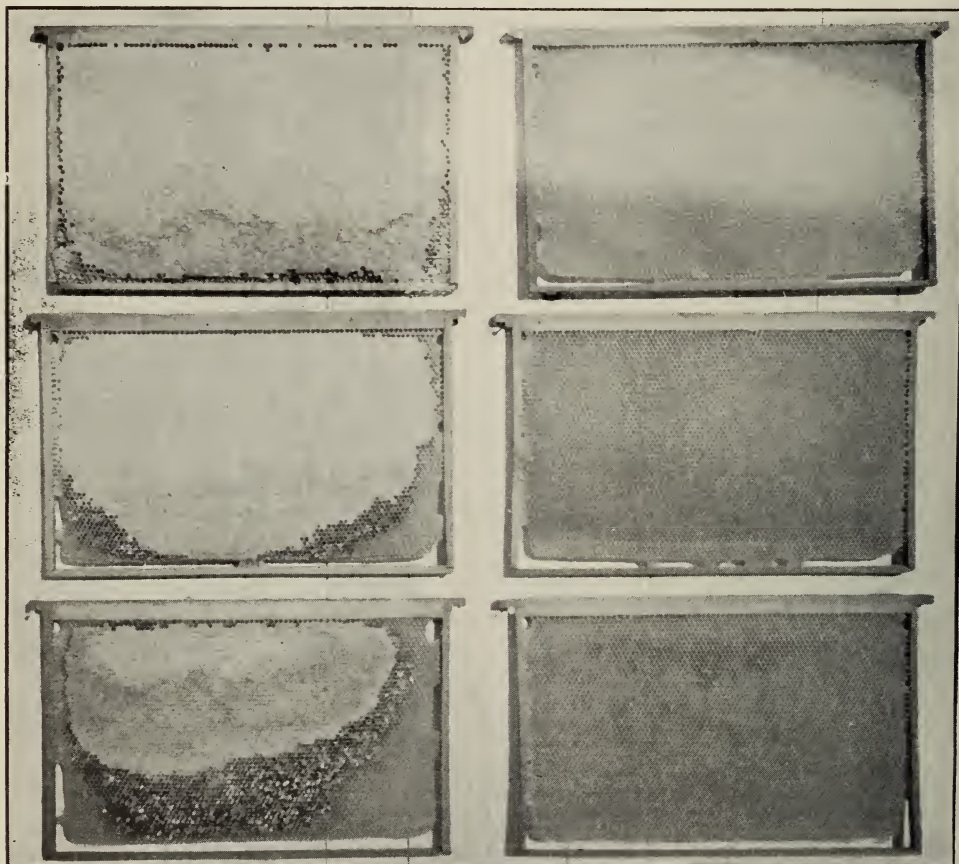
I have, during the last ten or fifteen years, used more or less foundation yearly; and this last summer, being a little short of extracting-combs, I again had 25 lbs. transformed into combs, and, strange as it may seem, there is practically not a sagged comb nor a stretched cell in the lot. I use, both in brood-chamber and extracting-super, what is called the Jumbo frame. Being 10½ in. deep in the clear it is probably the deepest frame of the flat pattern in use. Then I use full sheets of foundation 16 in. long by 9¾ wide, supported by three horizontal wires. This arrangement, according to Mr. Green's opinion, should give foundation the best chance to sag and produce the dreaded elongated cells; but it does not in my case, and why? I don't know that I can point out the exact cause, but here is my way of using foundation:

With the exception of a little experimenting years ago, when the use of full sheets of foundation in the brood-chamber was in its experimental stage, I have always strung my wires as tight as the wire and frame will bear. They fairly sing; and to produce this condition I use No. 28 wire. No. 30 wires would

not hold together under my treatment. They would snap off with every frame I handled. The directions for slack wiring to allow for the inevitable sagging, which Mr. G. cites, are contrary to my many years of experience.

Next I use medium brood foundation only. When we were advised to use light brood foundation in the main frame on the ground that it is more economical than the heavier kind, giving more square surface to the pound, I also experimented quite a little in that direction; but one season's experience satisfied me. It was buckle and sag, and sag and buckle all through the season, and I came to the conclusion that it would be poor policy to economize in one direction and then lose double and triple in another by being annoyed by the detrimental effects of elongated cells next to the top-bars. Mr. Green has plainly stated the results on this point.

Another feature that may have some bearing on the no-sagging inclination of my foundation is this: I never fill my frames in cold or even cool weather, but wait till later in the season until about the time when I want



Foundation, when built out into combs by Greiner's plan, results in perfectly straight combs, even though only three wires are used in a Jumbo frame.

to use my frames. It frequently happens that I fill a few dozen frames in the forenoon and use them in the afternoon. The weather is generally at its best in regard to temperature about that time. The honey-house in which I do this work is often as hot as an oven, to use the phrase, and foundation handled under these conditions has stretched about as much before it is put in the hive as it ever will or can thereafter.

Furthermore, I manage as much as possible to let my weakest colonies do the drawing out. The excessive heat in the brood-chamber of very populous ones, together with the heavy load of bees, might possibly cause some sagging; but I aim not to use such colonies for that purpose. If I am compelled to use foundation with strong colonies I let them draw it out in the extracting-super, where sagging or stretching is not so likely to take place.

But, say what we may, all our theories and suggestions are of little value unless we have some show of facts to sustain them. As a proof that all I have said and claimed in the foregoing is based on a pretty solid foundation of facts I herewith present to the readers a photograph of a variety of combs which were drawn out from foundation last summer. They are not selected to favor my argument; but I have taken about the first ones I ran across.

The three combs on the left are more or less full of honey, and capped. On account of the cappings the shape of the cells is not readily discernible; but the dark streaks between the rows of cells can be plainly seen. They are as straight as a chalk-line when being snapped. But there is another proof that the foundation has not sagged. The space between the lower edge of the foundation and the bottom-bar of the two lower combs is as nearly even, clear across the frames, as it was the day the foundation was put in. Wouldn't this space be a little contracted in the middle if the foundation had sagged, and had caused elongated cells next to the top-bar?

The second or middle row contains empty combs used in the extracting-supers. They are now cleaned out by the bees, and show the shape of the cells very plainly. It takes more than ordinary mechanical skill to detect a difference between the shape of cells on these combs and the original impressions on the foundation on which these combs were built.

The manner of fastening the foundation to the top-bar may not have any bearing on the sagging question, and it may. I never fancied the groove-and-wedge plan very much, but did it in the old-fashioned way by running melted wax on both sides along the joint. After the joint is "soldered" up on one side, a much better job can be done on the other. Undoubtedly the wedge plan will do the work a little faster; but if we have the right tools, have our wax at the right temperature, and have once acquired the knack of doing it, frames can be filled at a very fair rate. This point can not be dis-

puted. While the running-on wax strengthens the joint, the pressing by the wedge weakens it.

La Salle, N. Y.

[At the time Mr. Greiner wrote, he was doubtless unaware of the fact that he was confirming the position taken by W. Z. Hutchinson, in the *Review*, that *medium* brood foundation and horizontal wires drawn taut, or until they sing, solve the problem of the sagging in the foundation and a consequent buckling between the wires—solve the difficulty of elongated cells near the top-bar and filling the same with drone brood.

But the question that still remains to be settled is this: Whether the use of *light* brood foundation and *more* horizontal wires or wooden splints, *a la* Dr. Miller, would not be cheaper and just as free from the objectionable sagging. It is our opinion that they would. Although we do not know positively, we are beginning to think that more strands of horizontal wires drawn taut, and *light* brood foundation, will not only be cheaper, but give us combs that will be vastly stronger than those supported by splints or by three horizontal wires. It may take more time to put in the extra wires; but when one is at the job the actual increase is only very small.

The melted-wax plan of fastening foundation to the top-bar as described by our correspondent is satisfactory in the hands of one who knows how to use it; but it is far from being that in the hands of the average person or novice. For all such the double groove and wedge is preferable. Indeed, it is quicker, better, and much neater for even the expert.—Ed.]

SHIPPING BEES IN POUND AND HALF- POUND PACKAGES WITH- OUT COMBS.

The Possibility of Shipping Bees Without Carrying Disease.

BY E. R. ROOT.

Some twenty-five years ago there was quite a business in selling bees in pound packages; but owing to the difficulty of delivering them alive to destination the business was given up, and from that time on until very lately bees have been shipped out only on combs. In late years foul and black brood have become so prevalent over the country that it seemed desirable to try the old-fashioned plan of shipping the bees without combs in order to avoid entirely or at least minimize the danger of carrying disease. Foul brood is transmitted mainly through combs, honey, and brood. If these three are eliminated in shipping bees and queens, the chance of transmitting disease, even from an infected colony, would be very slight. For the last year or so, we have been trying the experiment of shipping combless and broodless bees in little light wire-cloth packages all over the United States; and by chang-

ing the package somewhat, and by giving the bees a good feed of syrup just before starting on their journey, the loss during shipment has been almost entirely eliminated.

It occurred to us that if we took the old pound package of years ago and placed therein a series of slats so that the bunch of bees would have something on which to cluster without having to hang to each other, as in a swarm, one difficulty, at least, could be overcome, for in the old pound cages there was no form of support except at the top and sides. The consequence was that the bees were obliged to cling to each other anywhere from two to five days continuously, depending on the length of the journey. This, it seemed to us, caused unnecessary bodily strain on the bees. As we wished to avoid the use of combs for the reason named, we made artificial supports of sawn slats that answered in lieu of a comb; then after putting the bees in the cage, and just after they start on their journey, we give them a feed of thick syrup—enough to fill their sacs full. This renders it unnecessary for them to draw on the queen-cage candy already in the cage; for we calculated that the supply of syrup in the honey-sac of each bee would furnish a form of sustenance that would be safer and better than queen-cage candy, which, to say the least, is an unnatural food.

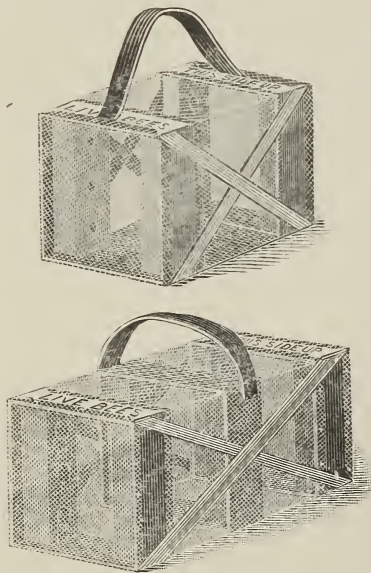


FIG. 1.

The form of cage which we use is shown in Fig. 1. The illustration, however, does not show the series of slats running lengthwise through the cage, and on which the bees hang for support while *en route*.

The question may be asked how the bees are fed through the wire cloth. This might be done in several ways; but the plan our apiarist adopted was to paint the syrup around the wire cloth until the bees had

taken up a liberal supply for the journey. They could be fed another way by inverting a Mason jar containing syrup covered with cheese cloth, and placing the jar and cloth, when inverted, on the wire cloth. But this would be a slower process, and would be no better in the end.

It may be interesting to the reader to know how bees are prepared for shipment in such packages. In the first place we have a wire-cloth swarm box capable of holding anywhere from six to eight pounds of bees. Through the top of this is a square hole large enough to admit the mouth of an oblong tin tunnel, which is of such shape and size that a frame well covered with bees can be shaken in it; and the bees, as they fall off, slide down the smooth surface of the tin into the swarm box below. One or two frames may be shaken from any particular colony. If we expect to put up a dozen packages we may shake some four or five different colonies, one, two, three, or more combs as the hive can spare. But the beauty of putting up bees in this form lies in the fact that we are not obliged to take them *all* from one colony; and, as we shall show, the queen to go with each package may be taken from an entirely separate colony or nucleus. When shipping bees on combs in the nucleus form it is necessary to take both queens and bees from one hive; but the bees and queens in pound packages may come from half a dozen colonies. In well-regulated apiaries there will always be a few colonies that can spare a few bees without detriment to their brood better than others; accordingly, when we fill up this swarm box or wire-cloth cage we draw from those stocks that can best afford the bees.

But perhaps the reader may ask how we keep them from fighting; and then if we take a queen from one hive, and the bees from two or three others, how we prevent their killing the queen. All this is very simple. After the requisite quantity of bees has been shaken into the swarm box, as shown in the different views of Fig. 2, the tunnel is lifted off and the opening closed with a slide. The bees are then put away in a cool room and left there over night. In the meantime a Mason jar containing sugar syrup is inverted over the wire cloth of the swarm box so the bees can take syrup through the night. The next morning this box of bees is taken over to the workshop and placed beside the various pound cages that are to be filled with bees. One of the cages is placed on a pair of scales. The bees are given a jouncing on the floor so they will be dumped in the bottom of the swarm box *en masse*. They are then scooped up by dipperfuls and dumped in the cage until the dial shows one pound or half a pound, as the case may be. The cover of the cage is then put on, when another package is filled in a like manner, and so on until all or nearly all the bees from the afore-said swarm box are put in various packages. The next operation is to take the queens one by one from as many nuclei of the grade and price required, and, by lifting the wire-cloth covers at one corner, run them in one by



Fig. 2.—The method of shaking bees into a swarm-box preparatory to putting them in pound cages without brood for shipment.



Fig. 3.—Shaking bees off the combs of baby nuclei late in the fall for the purpose of strengthening weak colonies in the same yard.

one—that is, one queen in each pound package.

The last operation of all is to dip a brush or rag into thick syrup and spread a thin film over the wire cloth. Care should be taken not to give them too much. If wire cloth is left dauby they will not go through alive.

Now, then, to answer the question why the bees do not fight or kill the queen. When bees are shaken into a box and made queenless, combless, and broodless, and kept confined over night, and fed sugar syrup,

they will be in a mood to accept *any* queen; and then, moreover, when they are shaken from several *different* hives, the colony odor is destroyed, and the absence of the queen, of brood, and comb, makes them fairly cry for something; and when that something is in the shape of a fertile queen she is accepted readily because of their dire distress.

Our Mr. Pritchard believes the mixing of *several* lots of bees has a tendency to make them more kindly disposed toward the queen, or to stay in a new location, than when all come from one hive; but our Mr. Bain thinks this makes no difference—that it is *confinement without comb or brood* that destroys their colony spirit, or that spirit that would resent the placing among them of a strange queen.

UNITING BEES IN THE SPRING OR FALL.

At the close of queen-rearing, perhaps in the fall, we usually have a lot of baby nuclei containing a few bees. It is impracticable to unite them in the ordinary way, and much less to winter them as they are.

Last fall Mr. Bain shook or brushed the frames of these babies into the swarming-box as seen in Fig. 3. When the box was fairly filled he closed it up, put it in a cool place, gave its bees a feed of syrup, and left them over night. The next morning the box was taken around to a hive that was a little shy of bees, and jarred on the ground to get all the bees in the bottom. They are next wet down with water from a brush or broom to keep them from flying. He then took a dipperful or two and dumped them in the entrance. This was done in the cool of the morning—



Fig. 4.—How bees are dropped from the swarm-box in front of entrances of colonies needing a few more bees for winter.

sometimes when it was so cold that the mercury was almost down to freezing.

In Fig. 4 it will be seen why the bees were bunched up and run into the hive. Strange as it may seem, they will all stay in their new quarters; and, what is more, they will take up with their new queen-mother. It comes to pass, then, that, instead of losing these babies as formerly, we can use them for strengthening up colonies in the same yard that are not quite strong enough to go through winter. The plan is so successful that the problem of uniting bees in the same yard, and making them stay in their new quarters, is practically solved.

It was Mr. G. M. Doolittle who, something over twenty-five years ago, advocated this plan of uniting. He found that, by shaking bees into a wire-cloth cage, and confining them in a cool place, he could do with them what he could not otherwise accomplish; but if we are correct he never went quite so far as to take the bees from a swarming-box like this and apportion them out among half a dozen colonies; but both Mr. Bain and Mr. Pritchard have proved that they can do this, although the plan pursued by the latter is slightly different from that of the former. Mr. Pritchard believes it is necessary to mix several lots of bees together, shut them up for an hour, wet them down, and dump them in front of baby nuclei which he wishes to supply with bees. Both Mr. Bain and Mr. Pritchard are agreed that *running bees through the entrance* is an important part of the procedure in making them stay in their new quarters. To put them on top of the frames will not answer.

In this connection Mr. Pritchard thinks that a thorough jouncing and shaking will put life and energy into loafing bees as almost nothing else will. Mr. Bain is not sure that this is so.

A PROBLEM IN WINTERING.

BY F. DUNDAS TODD.

This is the story of a failure, of a two-thirds loss in a mild climate, but of an exceptional winter in this respect when, for about ten days in January, the thermometer was near zero while a very strong wind prevailed, and then followed a decidedly cool spring with the temperature daily reaching almost to the flight-point, but rarely attaining it. Theoretically, wintering in such a region as Vancouver Island should be a problem of easy solution, and some years it is so; but there are others when the losses are very severe. Again, different men have different experiences in the same season. For example, my nearest bee-keeping neighbor lost 30 per cent; the next, half a mile away, 60 per cent; another near him, 7 per cent; one four miles away, 50 per cent, and much the same way with others to whom I have talked.

To show still further contrasts, two years ago one bee-keeper, in packing his bees for winter, after putting in the material for one

hive in an empty super above, forgot to put on the cover. It was a mild winter, only one morning's frost, and that was in March; but there was the usual winter's rain. However, the hive came through swimmingly—not swimming—the bees apparently enjoying the luxury of two entrances, the extra one, of course, being above through the packing. But in the same season an old-time and very good bee-keeper not a dozen miles away lost eleven out of a dozen hives, supposedly through honey-dew.

The most interesting feature about a failure is its cause, and that is the hardest thing to locate. Looking at the facts in the first paragraph, an easy-going mind would instantly say "season," and let it go at that. But in the midst of so much failure there are successes to be accounted for, and so it is our business to eliminate, as far as we can, the common factors, then duly consider the differences so that we may learn the secret of success. For almost a year I have gone over, hundreds of times, every detail of my own management, considering nothing as too trifling or unimportant compared point by point with other bee-keepers, and feel I have narrowed the problem to two propositions, perhaps only one, and I want to submit them to readers of this magazine for their consideration, and perhaps get definite decision as to their merits.

First as to hives. As readers already know, I at present am experimenting with the divisible hive, and, as far as possible, have transferred all my purchases into that style; but in the fall of 1908, out of 20 hives packed for the winter, two were eight-frame Langstroths several years old. The other 18 consisted of 6 colonies in double divisions; 12 colonies in single division, each division containing eight shallow extracting-frames.

As is the custom here, the hives were wintered on the summer stands, but they were wrapped in tar paper—a precaution supposed to be unnecessary. The bottom-boards had 1½-inch rims, the entrance being filled with a block of wood in which was cut out a smaller entrance ¾×3 inches.

I had started with nine hives, of various styles and ages, but had transferred in July and August to the divisible frame, too late as I afterward learned, since the honey-flow stopped before the middle of July, and there was no fall flow. In the middle of July I had requeened five hives by young queens from one breeder, and a month later I got a dozen queens from a different breeder, and so had 17 young queens and 3 old ones. After the final transfer I fed hive syrup to each every day to encourage wax production and brood. In the middle of September I proceeded to feed up quickly, and by the 20th every hive had at least 25 lbs. of stores on hand, every colony being actually weighed so as to make sure. Two months later, just before starting on a trip to the Atlantic States, I weighed several of the hives again, and found an average loss of four pounds, so I felt satisfied every thing was all right.

I got home Dec. 31, but no bees were fly-

ing as the weather was too cold. On Jan. 4 a cold wave struck this locality and lasted for about 10 days. About the 25th, bees were flying from most of the hives; and on the 27th, since a number were suspiciously quiet, they were examined and found to be dead, absolutely without honey and pollen. The others were glanced into, and found mostly to be on the edge of starvation. Then began a long weary fight with spring dwindling. In this I learned something about spring feeding in a cool climate. I tried feeding syrup from below, and discovered that the bees will not touch syrup so presented unless the air temperature is above 50°. Then I made candy, which was all right, and fed many pounds on top of the frames; but the quickest results I got was by giving soft brown sugar, Demerara or Porto Rico, in a frame affair set in the hive to one side of the brood-nest. Had I had a Doolittle feeder I would have tried it. But the bees needed pollen as much as sugar, and this I could not give them. For weeks the thermometer never rose above 48°, and, though willow blossoms were plentiful from Feb. 22, the pollen famine continued until well into April. Often I wished Dr. Miller or some other bee genius would invent a method of feeding rye flour in the hive.

Here is the mortality record for the various styles of hives. Langstroth: Original number, 2; died of starvation, 0; spring dwindling, 1; per cent of loss, 50.

Two division: Original number, 6; died of starvation, 0; spring dwindling, 3; per cent of loss, 50. One division: Original number, 12; died of starvation, 6; spring dwindling, 3; per cent of loss, 75.

All classes of hives, it will be seen, lost heavily; but a little explanation will modify these bald figures a little. The two Langstroths had stores of honey, even at the end of March. On March 18 one was in good enough shape to tempt me to put a weak hive on top, and a week later I found the queen in the upper division had begun to lay. April 2, flight looked very scanty, so I examined the lower division and found a big heap of dead bees on the bottom-board—no bees on combs, and not a scrap of pollen in frames; but there was about 2 lbs. of honey. On combining by the Alexander method I put wire netting above the excluder for two days, and had fed above a pint of syrup every night for a week. In other cases I had found this method seemed to work all right.

The story of No. 23, a double-division hive, is worthy of record. It was rather familiarly known as "skiddoo," and almost "skiddooed," but now it is called rather profanely "resurgam." Feb. 11, seeing no flying bees I examined the hive and was astounded to find a lot of apparently dead bees without a scrap of stores, either honey or pollen. I picked up frame after frame, each covered with dead bees—not a tremor of leg or wing being visible. A few fell into the hollow of my hand, and, acting on impulse, I breathed on them for a few minutes, then I saw a few legs move a little. I hunted for the queen,

and, finding her, tried the effect of breathing on her majesty. I fancied one leg quivered a little, so I replaced the combs in the hive, placing the queen with a loose handful of apparently dead bees on top of the frames. I put the hive on top of another colony with wire netting between. Lastly I mixed honey with water, and trickled over the bees and combs, then put some candy on the frames.

I was not hopeful of any good results, but next day I was much astonished to find the bees very much alive; and two days later the hive was replaced on the old stand. It simply kept alive until March 27, when I found a little brood; so I gave it a little sealed brood to help along with young bees. April 7, having bought some more hives I put it at the top of one of them for three days, then moved the old hive to a new stand. It advanced right along, and by the end of the season no hive had more honey-dew in its combs than that had. My notebook says 40 pounds.

But for a happy thought, No. 23 would have been among the dead, and the percentage of deaths of the two division hives would have been 66—that is, nearly equal to the single-division colonies.

My friend Mr. Russell wintered his hives pretty much as I did; and in comparing notes we arrived at these general conclusions:

The one-division hive was as successful as the two-division one.

A deep-rim bottom-board was as successful as a shallow one.

Since one of the oldest bee-keepers in this locality has frequently wintered on 12 lbs. of stores, and once on as little as 10, our 25 lbs. per colony ought to have been sufficient.

Our best results, but not numerous enough to justify generalization without other evidence, were with the hives that had not been transferred.

We could not blame the strain of bees; for in my own case two out of three of the old queens died, all the first importation of young queens, and five out of the dozen of the second lot.

We believe there was no honey-dew in our hives. I had fed an average of 15 lbs. of sugar to each.

The almost complete absence of pollen in the frames, although much was carried in during the fall months, led me for a long time to think that the young queen in the mild weather of November and December had bred freely, and so used up the stores. The bountiful supply of dead bees on the frames still further confirmed this suspicion. But in the course of my reading I stumbled on another idea which, the more I think of it, appears to be the best explanation of my failure in wintering. It is found in "A Modern Bee-farm," by Simmins, who emphatically advises that only old brood-combs should be used for wintering, insisting strongly that the cocoons and other matter in the combs prevent the conduction of heat, whereas pure wax, as in new combs, permits the heat to disperse rapidly, and the bees soon

use up their stores to generate sufficient warmth.

The only complete sets of old combs were in the Langstroth hives, and these were the only ones that did not need to be fed. After noting Simmins' warning I examined all the combs in the dead hives and found that very few of them had been bred in—in fact, they were hardly travel-stained. This disposed of the breeding-up theory.

So, after long consideration I am of the opinion that new combs is the real explanation of my failure in wintering; but I will gladly welcome any evidence to the contrary, for I am well aware that some bee-keepers advise the frequent discarding of old combs in favor of new; but I have not in the course of my reading found any one who recommended that bees be wintered on combs that had never been bred in.

For the winter of 1909 I have tried, as far as possible, to have the bees on old combs, though not as completely as I would like, as I transferred practically all my new purchases, and, besides, have had to contend with the additional handicap of a blank season. But I am wintering six Langstroths with undoubted old combs, and am awaiting the results with considerable interest.

Victoria, B. C., Oct. 20.

BEE-KEEPING NOTES FROM TEXAS.

A Series of Articles in Answer to Numerous Enquiries.

BY LOUIS H. SCHOLL.

INTRODUCTORY.

Letters by the score, regarding Texas as a honey-producer, and many other questions relative to bee-keeping in the great Lone Star State, together with several requests from many, and, lastly, a request from the editor, have prompted the writing of a series of articles for GLEANINGS for 1910, with the hope of answering all these enquiries as far as it is possible to do so, and fulfilling the requests so often made.

Texas has grown, is growing, and will continue to grow, not in area, for she is big enough in that respect, but in every thing else imaginable, for she is making greater strides now than ever. In this, bee-keeping must be included, for that, as every thing else, has progressed until now it has placed the great Empire of States in the lead, ahead of any other in the Union. We are not saying these things to boast, nor have we an ax to grind or something to sell, but merely because they are facts for which we have been asked, and to give the information sought by so many.

While many of the localities are already taken up and some of them overcrowded, to the detriment of the bee-keepers, there are others that are entirely unoccupied. To prevent the influx of new comers continually settling in parts already occupied, and aiding in a better distribution of such into new

and better localities, for the benefit of all concerned, shall be the aim, in part, of these papers, which will follow in rotation as space permits. Besides information about Texas and the bee-keeping localities, articles will follow on subjects like the following, which should be of interest, not only to those who are interested in Texas bee-keeping, but others as well, as these will embrace methods and management that are applicable to other localities as well as in Texas and under Texas conditions. These will be mostly formulated after our own extensive work with 20 apiaries scattered from a few to several hundred miles from the center of operations, and with an experience in this State of nearly twenty years of bee-keeping.

The series that will receive attention throughout the present year are about as follows: "Texas, what she is as a honey-producer;" "The widely different and varying localities in Texas;" "Some of the advantages of Texas over other honey-producing States;" "Something about Texas honey-yielding plants;" "The kinds of honey produced in Texas, and why;" "Bulk comb honey and its extensive production;" "Texas from the standpoint of queen-rearing;" "Why the ten-frame hive is most used;" "The advantages of the divisible hive;" "Extensive out-apiary management;" "Getting the most for the honey crop;" with perhaps a few changes as needed.

By the aid of pictures and the use of charts and drawings it is our intention to make the reading-matter not only the more interesting but plainer, so as to be easier to understand. We shall be brief, yet try to cover the ground; and it is hoped that the readers who are interested in these notes from Texas will not only assure themselves that their subscription is kept up but will direct others of whom they know, who are or might be interested in this series, to subscribe for these numbers for the entire year, and thus not miss any of the copies. We call attention to this matter only so it may save others writing to us with numerous questions on these subjects that will be fully discussed in GLEANINGS during the year. It has been our desire to call attention to this series for that reason, and therefore this introductory has been written.

New Braunfels, Texas.

OUR EARLIER BEE-KEEPING.

Trials and Tribulations; Use of Comb Foundation; our Section-supers, etc.

BY F. GREINER.

My first real experience with bees dates back to the year 1872. When I had hived a swarm with the help of an old soil-tiller, and did it successfully, and without any special protection, my enthusiasm was kindled, and I began to think that I had the stuff to make a regular professional bee-man. The hives then in use here were box hives. No one in these and many other parts had even

heard of a frame hive. I remembered from my boyhood days a frame hive in my grandfather's house-apiry; for Baron von Berlepsch, simultaneously with father Langstroth, had constructed a frame hive already in 1856; but I had not yet formed an exact idea of the frame, the bee-spaces, etc., even after reading a bee-book of Dzierzon; and when I bungled up a sort of box hive with frames it was any thing but perfection.

In 1875 I saw the first properly constructed frame hive, and I, with my older brother, G. C. Greiner, well known to the readers, built several hundred such hives in the spring of 1876. Unfortunately, GLEANINGS had not yet found its way into our hands, and we were, in a measure, groping in the dark.

At the centennial exposition in Philadelphia, 1876, I saw the first sample of comb foundation. The article was rather inferior as compared to what our manufacturers turn out to-day with their complete machinery, their superior methods of cleansing and purifying wax, etc., but it was a long way ahead of no foundation at all. Up to that time, and for one or two years after, we had to (or did) get along with naturally built comb as starters in our honey-boxes and with wooden comb-guides in the brood-frames. Many a time we were forced to take old comb and cut it nearly down to the septum so as to serve us in our comb-honey supers. We had to be on the lookout for new comb constantly wherever an opportunity offered. During fruit-bloom was a good time to have strong colonies build us comb of the finest kind for starters; but this required close watching, and the hives had to be opened often and the comb cut out in order to get the start of the queens. The younger beekeepers, who have always had comb foundation to use as starters, both in brood-frame and super, would now consider it a great hardship if they had to get along as we did in those times.

However, we produced very fair honey, even under such adverse conditions. We were then using a nailed two-pound box, which was glassed on both sides after being filled by the bees. The package—wood, glass, and all—was weighed up and sold as honey. It was certainly not a losing game to put on the glass. Sometimes the sheets of glass were very thick and heavy. We never ordered such heavy glass, and our conscience troubled us not a little for hoisting this on the unsuspecting customer. We produced, during the years 1875, '76, '77, till 1885, many tons of comb honey, of which every box was glassed, and the gain thus made was considerable.

In 1877 we were only just beginning to use separators as an experiment. Tin separators were used by A. I. Root at this time and previously; but we had not found it out, and we were trying wood as the more congenial and natural. James Heddon and others argued that wood could not be used successfully as a divider; but in all of *our* trials it proved a success. We constructed several different

styles of supers with wood separators, for our open or undivided super did not please us, although we had little trouble in crating all the honey we produced with the help of them.

It is sometimes claimed that it requires more skill to produce good honey without separators than it does with them; but in view of the fact that we for several years, as beginners at that, successfully produced comb honey by the ton without separators—yes, and also without the auxiliary of comb foundation, this contention is without sufficient support—nay, it seems to me the greater skill is required to produce comb honey in our modern divided and sub-divided and cross-divided supers.

Before adopting a super which satisfied us during this earlier period, many of different styles were studied out; and after trying them we discarded them till we hit on the wide-frame single-tier super. Just about this time GLEANINGS came into our hands for the first time, and we found that A. I. Root had a double-tier wide-frame super already in use for several years. With this fact before us our confidence in our single-tier super increased to such an extent that we speedily changed all our stock of supers into this style—something which I never had the slightest reason to regret, although manufacturers have abandoned their wide-frame (double-tier) super for such of other constructions. The most or all of these newer supers do not protect the tops of the honey-boxes, and they at times become badly besmeared with propolis before being ready to be removed from the hives. The T super is the simplest and most inexpensive of all the supers before the public. It neither protects top nor bottom of the section boxes.

To be fair, I have given nearly all of the different styles of supers a trial. With me those parts of sections which are unprotected—in other words, are not covered up by either the bottom-bar or the top-bar—the sides of the sections being protected or inaccessible to the bees in all kinds of supers—have often, if not usually, become besmeared with bee-glue to such an extent that I could not properly clean them with a knife. I consider this a serious enough fault to condemn all such supers as leave either the tops or the bottoms of sections exposed to the bees; and I have gradually worked them over into wide-frame supers with the exception of some thirty T supers, which so far have escaped, although they are not expected to be put on the hives again in their present form. By mere accident two or three were put on last summer, and were filled also. It was a singular occurrence that a case of honey which I took to one of our groceries a few weeks ago came from one of these T supers. I had forgotten it; and when I opened the case I was greatly mortified to find such dauby-looking boxes. I believe I take at least as much pains as the average beekeeper in cleaning up my honey, and I remember very distinctly having used more "elbow grease" with this lot than with my

other honey, even using sandpaper; but to make a respectable lot of it was impossible. I had to give it up.

In favored localities, and with a good honey-flow making it possible to get the section honey off the hives inside of three weeks, reasonably clean honey can be and is being produced; but in my locality, and perhaps with my faulty management, I need something like a wide-frame super. Such a super has a further advantage over all other supers inasmuch as it provides that Pettit bee-space, not only at the sides but also at the ends; and the better filling of the end sections in the wide frames over those produced in T supers or the like is unmistakable.

The average bee-keeper is satisfied with such hives and other appliances as the supply-dealers see fit to offer; and if in any way they can get along with them they continue their use and say nothing. The more exacting go to work and make their supplies to suit their own notion.

I note with satisfaction that, in the catalog of 1909, a wide-frame super is listed, and I hope many will avail themselves of this opportunity and give them a trial.

During the earlier years of our bee-keeping we were rather unsuccessful as to wintering our bees. In the winter of 1880 we lost more than half of our colonies. We attempted to winter without protection (packing) on the summer stand. After some heavy losses we found that it was unsafe to winter bees thus outdoors in our climate. We succeeded quite well in wintering in cellars; also by packing our bees. My fifty chaff hives come through in good shape almost without fail each year. It makes little difference whether the bees are under sealed cover or whether a quilt is substituted under the packing instead of the inner cover or honey-board, as we used to style it. With ordinary winter supplies (stores) I little fear the winter. Only when our hives are crowded with honey-dew do we need to anticipate winter losses.

Naples, N. Y.

ITALIANIZING IN SOUTH AFRICA.

No Foul Brood; Can the Disease be Carried by Mail?

BY D. S. VAN WARMELO.

We have in South Africa two well-known kinds of honey-bees that gather and store honey—the yellow and the black bee. The yellow bee looks very much like the Italian, but is smaller, and has a more pointed abdomen with the yellow bands less pronounced to the end. The black bee is, as the name suggests, dark in color, and looks quite different. Both kinds are very vicious, the black one taking the cake, but is, although smaller in size, the better honey-gatherer according to most farmers.

Before the Boer war broke out, in 1899, I kept, as a hobby, the yellow bee in a few

Langstroth hives in Pretoria, and have only since the war made a special study of bee-keeping, on a limited scale, however, as I would not be allowed to keep an apiary in the town, however big and secluded my place may be. But on this account I considered myself in a good position to experiment with Italian bees, and imported a few last year. I also got some from the government to experiment with.

Some colonies of the native yellow bee are wild, and so this race might by selection be civilized in the course of many years; but it would, judging by the absence of outward signs, take a very long time, as it would be difficult to judge, even if the offspring of a mild queen, whether she has mated, for instance, with the drone of the colony that had been artificially stimulated to rear drones out of season; and, besides, the bees of a colony may remain quite tame for many months, and one day sally forth and sting to death every living creature near their abode. Every year my fowls are stung to death by my bees, generally when I am not at home, through boys throwing stones at the hives, or by some other provocation less naughtily meant.

On account of this viciousness of the native bee, the importation of the Italian bee would be a great boon to us if, in other respects, it is as good as our bee in our climate. In winter in the Transvaal the nights are cold and the days warm with sunshine. To the Italian bee this difference in temperature seems to be perplexing; for on my return home this winter, after an absence of three months, I found the Italians weak, with hardly any brood; but the brood-chamber was stocked with honey, though not so much that not enough room was left for the queen to lay eggs; whereas the native colonies, instinctively knowing that there will always come in some honey from the eucalyptus-trees during winter, and also feeling the necessity of making up for the wear and tear of life, which in winter is great in a mild climate, had used up much of their stores in order to raise brood. This I consider the redeeming quality of our native bee, as I would rather feed a colony or leave it much honey than run the risk of losing it through insufficient breeding.

Last season I had introduced seven Italian queens by my own safe method, i. e., by tacking wire gauze over a queen-excluder, putting this on a strong colony and over it a brood-chamber with the Italian queen on combs with hatching bees. From these queens I reared several more which I either introduced by the Simmins pasting (direct introduction) method or reserved in nuclei. In order to avoid confusion I had cut the right wings of the imported queens and the left wings of the untested ones.

On my return three weeks ago I united the weak colonies and gave them all Italian queens mated with common drones, retaining three pure imported queens to rear from next season, when I shall, by the law of parthenogenesis, have only pure drones fly-



ing from all my colonies, twelve in number. In the summer, in December, last year, when the honey-flow ceased I was disappointed in the Italian bees casting out all their drones so that I had to abandon all hope of rearing any purely mated queens, not having time to rear drones artificially. This year I hope to continue my experiments, and, if successful, I may afterward be able to judge which bee is the better, and whether the Italian is likely soon to acclimatize and acquire, through experience and inheritance, those qualities that are essential in our country. If she behaves in the same way in her native land as she has done here this first year, then she has, besides her gentle nature, only one quality better than our bee—namely, of putting on a tremendous spurt to bring in the last drop of an ebbing honey-flow.

Langstroth made mention, in his book, of this quality of the Italian bee of filling the brood-chamber with honey, but did not state whether or how this drawback was overcome. I should be very much pleased to learn from the editor, or somebody else, what those men experienced who first introduced the Italian bee into other countries, and how they succeeded in educating it up to the customs of the adopted country.

We have no foul brood in South Africa. As the disease is, according to most books, in the honey-sac, the starvation cure being the most effective remedy there seems to me no danger of importing queens in traveling-boxes, as I have received mine, in the accompaniment of about 25 bees, provided every thing but the queen is immediately destroyed on arrival. Or do you agree with those who advise us not to import foreign bees?

Likewise, I should be very glad to be informed whether the governments of other countries appoint bee-experts who go about lecturing on bees, giving demonstration lessons, and generally teaching people how to work with bees. Such encouragement from the government would certainly tend to promote bee-keeping; but has it any drawbacks?

Harmony, Pretoria, Transvaal, South Africa, July, 1909.

[It is probably true that Italians are more inclined to congest the brood-nest with honey than blacks. While for the production of comb honey this is a slight disadvantage, yet for the future prosperity of the colony it is an advantage. If, however, the modern methods of comb-honey production are followed there will be no great difficulty in getting Italians into the supers.]

We do not believe that foul brood can be carried in the ordinary mailing-cage providing the precaution is taken to transfer the queen from the cage in which she is received to an entirely different cage for introducing. The only way of carrying infection would be through the honey used in making bee-candy. Reputable queen-breeders in this country, so far as we know, make it a practice to sterilize the honey which they use for making queen-cage candy. If the party at

the other end of the line who receives the queen transfers her to an entirely different cage we do not see how the disease could be transmitted. Of course, as a further precaution the mailing-cage should be burned.

England sends out bee-experts to lecture on bees in different sections of the country. Just how much of the territory they cover we do not know. Something of this kind is done in other European countries. So far the United States has done nothing of this sort except that its experts in the Bureau of Entomology, Washington, D. C., sometimes go out to attend bee conventions, where, of course, they are called on to read papers. Some States of the Union send out foul-brood inspectors who not only give directions on how to cure bee diseases but furnish valuable information on the general handling of bees.—ED.]

QUEENS HATCHED ABOVE AN EXCLUDER.

A Good Plan for Keeping Surplus Queens.

BY A. J. BURNS.

Last fall I put some thirty or forty ripe queen-cells in as many upper stories, provided with an upper entrance with a division-board between made of very thin boards with a three-inch hole bored through on each side of the center about midway between the ends, and covered with excluder zinc. Of the whole lot I got only three queens fertile; the rest disappeared, or I found them dead on the division-board. A number of others disappeared similarly. I then began to watch for the cause. I saw nearly all the young queens just after emerging, so I know they had a fair start. One day I saw a young queen crossing one of these openings when a worker came up from below and seized her and almost instantly stung her. A few spasmodic quivers and she was dead. The queen below was less than a year old. In the light of Mr. Beuhne's experience, page 1062, Sept., 1908, perhaps if the queen below had been three years old or over it would have been different; but I do not often have queens as old as that. I then tacked a piece of wire screen on the under side of the opening, and nearly all were fertilized; however, by this time I did not have many queen-cells left, and it was too late to start more.

I found these queens to come in most opportunely later. Half a dozen or more colonies became queenless through various causes. I took one of these stories, bees and all, where there were two queens and changed places with one of the stories of the queenless colony, taking the story with the most or least honey, or most or fewest bees, as seemed advisable under the circumstances; placed a sheet of paper between the strange bees so they would mingle gradually, and all went well.

San Diego, Cal., Nov. 30.

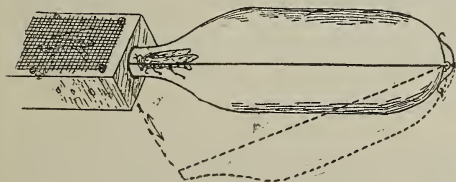
HEADS OF GRAIN FROM DIFFERENT FIELDS

HONEY COULD NOT BE FILTERED THROUGH CHARCOAL.

On page 674 Mr. H. D. Tennent suggests that bone charcoal might lighten honey-dew and improve its flavor. In order to benefit by the bone-charcoal treatment the honey would have to soak right into the pores of the boneblack and percolate intimately through it. I do not see how such a heavy syrup as table honey could possibly do this. I never worked as chemist in a sugar-house using boneblack (beet-works use sulphur fumes instead); but I see in some text-books that the filtering is done on intermediate syrups, say 30 or at most about 50 per cent solid matter. Honey at about 80 per cent would have to be diluted by more than its volume of water, and filtered hot. I am afraid it would not be possible to bring it back to 80 again without boiling, and then the product might get darker in color than it was in the first place. Also, if boiled, the honey would show a reaction for furfural, and this might bring it in collision with the pure-food laws.

A FASTER WAY OF CAGING BEES.

It seems to me that time might be saved in putting bees into queen-cages by using a little arrangement something like the one shown below. The bees could be allowed to crawl in from one or two while the oper-



ator would be brushing some more into another from the proper nucleus. If a beginner had just one he would be happy in relieving his clumsy fingers from the strain.

BEN P. EDGERTON.

Hicksville, Ohio, Nov. 4.

[Your arrangement for catching a lot of bees, and running them into a cage, looks, on first thought, as if it might work very nicely. Your idea seems to be to put the bees into a dark inclosure, assuming that they will go toward the light and into the cage; but in actual practice we doubt very much whether they will do this. Of course some of them would go into the cage, but others would remain in the wooden bottle, so to speak. While we never tried it, we doubt very much whether for average work a queen-breeder could put up as many queens with this arrangement as he could in the old-fashioned way, picking up the queens one by one, and putting them into a cage as illustrated recently in these columns. The hand-pick method is sure of results.—ED.]

ITALIANS DYING FASTER THAN THE BLACKS.

I introduced Italian queens to some of my black bees last summer. I examined them late in the fall, and they had plenty of honey to carry them through. In fact, the Italians had more honey than the blacks. I keep my bees outdoors all winter, as we don't have very cold weather down here.

The coldest weather we have had this fall and winter was just cold enough to freeze water so ice would be about a quarter or half an inch in thickness; and every time these little cold spells come, which last from one to three days, I can find from half to a handful of dead bees among the Italians, and none at all among the blacks.

WHAT IS THE BEST PLAN TO KEEP DOWN INCREASE?

I have nearly as many bees as I want, and I wish to adopt some plan to keep them from swarming. The above two subjects are some I want to have your ideas on; and any thing you give me on the same will be appreciated.

TOBACCO-BLOSSOMS NOT INJURIOUS TO BEES.

Mr. J. A. McKinnon, page 787, Dec. 15, wants to know whether tobacco is harmful to bees. I live in the tobacco belt of North Carolina, in Granville Co. Tobacco is the principal money crop, and it is grown here on

a large scale. I have noticed, time and again, when tobacco-fields were in full bloom with thousands of blossoms, and I have never yet seen a bee gathering nectar from them. For this reason I don't think it was tobacco-blossoms that affected Mr. McKinnon's bees.

Tar River, N. C., Dec. 27.

J. Y. CREWS.

[Years ago some statement was made to the effect that blacks were harder than Italians. In 1879 we had something like 20 colonies of them among our Italians. We kept them to test them in comparison with yellow bees. They were inferior as honey-gatherers, mean as robbers, and no better for wintering, or at least that winter, as it was an ordinary one. There has been a sort of impression that black races of all kinds are more hardy than any of the yellow races. This is possibly true, as their native habitats are in colder climates, but not colder than the home of leather-colored Italians on the Alps of northern Italy and Switzerland. Any yellow bees bred for yellow color, according to our experience (and we tested a good many strains of them), will not winter as well as the leather-colored strains of Italians. It is possible that you may have had some of this too much inbred weakened yellow blood.

The best plan to keep down increase is too large a question to discuss fully here, and we would, therefore, refer you to the text-books, particularly our A B C and X Y Z of Bee Culture, under head of Swarming. If we were running for extracted, and desired no swarming, we would use ten-frame three and four story hives, without queen-excluding honey-boards. If we were producing comb honey we would use any standard hive, clipping the queen's wings, and have the swarm as it comes out on the old stand in another hive containing foundation starters. The parent hive we would place at one side, and at the close of the season we would put it on top of the hive of the swarm, of course taking away one of the queens.

With regard to the question of whether the nectar from tobacco-blossoms is injurious to bees, your experience would prove nothing, as you say the bees in your locality do not work on the blossoms. What we wish to know is the effect of tobacco-nectar on bees when they do work on the plant.—ED.]

WHAT SHOULD A SECTION OF HONEY WEIGH?

On p. 591, Oct. 1, is an item on "scales for weighing sections," stating that all sections not weighing 13½ oz. should be put down as seconds. Now, will a 13½-oz. section, or even 14½, go for a No. 1 section? There are 16 ounces in a pound, in New York; then the section itself weighs about an ounce when dry; and if a customer is to get 1 lb. of honey it should weigh 17 oz. or else honey goes for 12 oz. to the pound. Please enlighten me, as I am a beginner. Most of my sections weighed 15 oz. when full.

ARE THE GOLDENS HARDY?

Are the golden Italian bees as rugged and as good workers as the three-banded? They are very pretty; and if as good every way I should think there would be a good demand for them.

Johnsonville, N. Y., Dec. 20.

A. D. CASE.

[There is no advantage in having a section weigh more than a pound. Most dealers prefer to have a scant pound; and some even prefer to have them weigh no more than ten or twelve ounces. A full pound of honey at the present time runs anywhere from 18 to 25 cts. at retail. The average householder wants something he can get for about 15 cts.

Our experience with golden Italians (and we tested a good many strains of them winter after winter) is that they are not hardy in comparison with ordinary strains of Italians that have not been weakened by inbreeding. Our different apiarists who have worked for us have, time and time again, remarked that extra-yellow bees that we keep to show to visitors are the first to die in winter if there is any mortality. While the ordinary strains would come through in fairly good condition the yellow bees would either die outright or be very much weakened before spring.—ED.]

WHAT APPEARS TO BE POSITIVE PROOF OF THE VALUE OF BEE-POISON FOR RHEUMATISM.

Dr. Bonney says, page 784, Dec. 15, he had rheumatism after becoming immune to bee-poison. That is one side of the story. Let me give you the other one. I used to have rheumatism so bad that several times I was for a week at a time on my back unable to get up on my feet without suffering extreme pain. Since I began keeping bees I have been entirely rid of that ailment with the exception noted below, and I believe that my cure was due to the bee-poison; but the doc-

tor would not accept this as proof. He said it just happened so, or that the rheumatism was just ready to leave me. But I have a stronger proof in support of my belief. I broke my arm over thirty years ago, and once in a while I have had severe rheumatic pains in my wrist. Whenever that has happened (more than twenty times) I have gone to a hive, caught a bee, and made it sting me on the affected part, and in less than a minute the pain was gone. That remedy never failed me.

Lake Mills, Wis., Dec. 21.

GUSTAVE GROSS.

[The last incident seems to furnish quite positive proof of the value of the poison.—ED.]

MOLD ON HIVES IN A CELLAR.

We put 150 colonies in the cellar with ice, snow, and frost upon the hives. Some of the hives have white mold on the fronts. The bees have been in ten days, and the thermometer stands at 42 F. It was 30 the first day. The hives appear to be damp. I expect to put some lime in the cellar to slack and take up the moisture. What would you advise? IKE BARBER.

Smithland, Iowa, Dec. 11.

[If your cellar is too damp, and especially if the temperature is down to 42, we would advise you to use a small drum stove and burn chestnut hard coal. A light fire for a few hours would dry out the cellar and raise the temperature to about 45. It should not ordinarily go much higher than that. If it should run up to about 45 without the stove, dampness on the outside of the hives would do no particular harm. If the temperature was 42 at the time you wrote, it would be our opinion that it might run much lower than this before the winter is over. If so, you might have some severe losses with considerable dysentery; for of all poor places to winter bees in, it is a damp cellar with a temperature running down to 40 or below.—ED.]

LIME TO PREVENT "WEEPING" OF HONEY.

I do not think it wise, usually, for amateurs to try to rush into print; but after reading Mr. Hart's "tale of woe," page 738, I am tempted to say that I am storing comb honey in a basement. It is dry, but there has been a little tendency to "weep," and I am trying the experiment of putting a few pounds of fresh lime under each pile of supers. I place a bottom-board on the floor of the basement, an empty super on that, some lime in that, then tier supers of honey right from the hives twelve or so high above the lime. So far as I can judge, the scheme seems to have some merit; and if it is new, perhaps some who are troubled with weeping honey would like to try the experiment also.

Billings, Mont., Dec. 10.

C. M. CHAFEE.

[If possible some other place rather than a basement should be selected for storing comb honey, for the air, though apparently dry, is seldom dry enough. The letter below from Mr. Wilcox covers this matter pretty well.—ED.]

THAT "WEEPING" HONEY.

A few years ago, when I was producing comb honey largely I had some experience with the same trouble, page 738. If honey was stored in a room much cooler than the outdoor air, or one wholly or partly below ground, or if the room was very close, with little or no ventilation, that sweating or "weeping" appearance was almost certain. I have seen it in the supers on the hive where the colony was very much reduced in strength after the sections were finished and a spell of warm foggy weather followed. I always prevented it where I stored it in a well-ventilated chamber under the roof with a fire in the room below.

There is much difference in the thickness of cappings. That with thick cappings will not "weep" as soon as that with thin ones. I thought the cappings were made thicker by leaving the sections on the hive after they were finished; but of that I am not so certain. I think comb honey can be made thicker by good storage after it is off the hive, and I know it can be made very much thinner by bad storage.

Mauston, Wis., Dec. 15.

F. WILCOX.

WHITE RATS DRIVE OUT GRAY ONES.

In your Dec. 15th issue is an article on how to get rid of rats. I was troubled with them, and secured a pair of white rats and let them run on the premises. I fed them at the shed where I kept my bee-supplies. They are not destructive, as I have left combs filled and foundation exposed, and they did not touch them. They drove out all the rats and mice on the place.

Lebanon, Pa., Dec. 26.

W. H. JONES.

WIRE CLOTH IMBEDDED IN FOUNDATION.

Having read the arguments pro and con in regard to fastening combs in frames by wiring or with splints, the idea suggested itself to me why wire cloth could not be used with a soft thin wire, and a mesh of about the size of a worker-cell, and milled right into the foundation at the factory. The size of wire and mesh best adapted could soon be determined by a little experimenting. It would be cheap and effective. It would not be necessary to have it the full width of the foundation sheet. One-third or half the width would certainly be enough. I think it would not cost much to try it. I never saw this idea mentioned before, so there is no patent on it.

Fredericktown, Mo., Dec. 13.

J. BACHLER.

[Wire cloth such as you describe would be too expensive. Then, too, it would be practically impossible to run it through a mill as you suggest.—ED.]

HOW TO AVOID AFTER-SWARMS.

How would you treat a colony with a clipped queen that has swarmed and lost its queen, and the queen-cells hatching? I want to save absconding. The bees seem to have such a desire to swarm that most will leave if they are not divided quite small.

Canton, S. D.

L. A. SYVERUD.

[After the prime swarm has come off from the colony there will be a number of virgin queens, and each one of these will be likely to lead off an after-swarm until there is nothing left of the old parent colony. After the first swarm has been cast, all cells should be destroyed but one. If the virgins are hatched they should all be removed but one. While this plan will not necessarily stop after-swarms in every case, it will go a long way toward it. For a further discussion of this subject see "Swarming" in our A B C and X Y Z of Bee Culture.—ED.]

UPWARD VENTILATION VS. SEALED COVERS.

Sealed covers should always be made from half-inch white pine. They should not be disturbed too late, for the bees should have them sealed before cold weather sets in. If bees are packed in chaff hives, as they should be, with a $\frac{3}{8}$ x 8 entrance kept free from snow and ice, this entrance will take care of all ventilation required to carry moisture from the colony. Wild bees do not have absorbing cushions. Who ever heard of an absorbing cushion in a bee-tree? The moisture is taken care of by the entrance to the cavity. Bees will propolize all cushions where they can get at them; and since this is true, why do we put such material there? I have always used sealed covers—the tighter the better. I have not lost a colony of bees in wintering with sealed covers in 25 years.

Ashtabula, O., Nov. 6.

THOMAS CLARK.

WINTERING ON SUMMER STANDS.

My hives are eight and twelve frame, also twelve-frame sectional. The latter I like better for many reasons. All except the eight-frame are made of $1\frac{1}{4}$ red cedar, with flat covers of the same cleated on the ends. These are fitted snugly over the frames without packing of any kind. When the wet season arrives, the hive is blocked up in the rear as high as it will go without sliding off the stand. This allows condensed moisture to run down and out at the entrance without any falling among the bees. At the same time it makes a deep hive out of a shallow one, which is no small advantage. Do not hesitate to try it.

Sonora, Cal., Nov. 11.

A. V. HEROLD.

COLORADO GRADING-RULES ALL RIGHT.

Friend Trickey, of Reno, Nevada, says, p. 723, Dec. 1, "We must depend very largely upon the honesty of the producer. If he does not grade honestly and fairly, cut him out." Our Colorado rules do this to a T, and no one person or committee is called upon to do the cutting. Our rules saved us this year of light weight.

Platteville, Col., Dec. 13.

R. H. RHODES.

SIZE OF BEE-SPACES BETWEEN SUPERS.

When one runs for comb honey, and has two or more supers on one hive, what would be the right bee-space between each two supers— $\frac{1}{4}$ or $\frac{1}{2}$ inch?

Bellaire, Mich., March 8.

A. SCHOOLCRAFT.

[One-half inch would cause trouble. One-fourth inch is about right.—ED.]

POULTRY DEPARTMENT

By A. I. ROOT.

CHICKENS IN FLORIDA; THE "SIMPLICITY" INCUBATOR, ETC.

We left our Medina home on the evening of Nov. 15, and on the evening of the 17th were in our Florida "cottage in the woods," installed for the night. A week or two ago I asked my neighbor, Mr. Stanton, who had my fowls during the summer, to save up for me from my strain of Leghorns 12 or 14 dozen eggs for starting my incubator on arrival; and, accordingly, on the 19th I gave my new incubator 120 eggs, this being the first time I had ever made a trial of it with *all* the shelves filled. Mr. S. had 13 dozen eggs saved up for me; but he gave them to me with the following caution: There were only two males in my flock of 60 hens—my old \$5.00 one, and a cockerel; and, worst of all, he discovered, the day before my arrival, that the \$5.00 bird *could not be found*. He had missed several grown-up fowls before; and the only explanation for it was that a wildcat had jumped the four-foot netting fence, or that some one had *stolen* him.

Now, I always dislike to hear talk about "stealing" unless there is a very good reason for suspicion; and I have before remarked that my neighbor, Mr. Rood, has for years kept all his fowls roosting in an open shed, almost close up to the highway. Their perches are only about a yard high, and one could pick up a chicken any dark night, without even opening a door or gate to the hen-roost. Why, even the colored people in this region don't "steal chickens." I wonder if I shall offend (by "stepping on their toes") any of my good friends if I say right here that my good neighbor Ten Broeck (just over the poultry-fence) said yesterday, "Mr. Root, this street we live on is about a mile long, and fairly well settled; but there isn't a man or boy on the whole street who uses tobacco in any form or shape."

Now, isn't it a fair deduction that my rooster certainly wasn't stolen—at least not by any one in this neighborhood? No one knew exactly when he disappeared, but Mr. S. couldn't find him in the flock the day before I came. I decided to put the eggs in my incubators, however, for I wanted to make some experiments on fertility any way. You see I am working somewhat like our experiment stations. A farmer visited one of the branch stations near my Ohio home, and complained that the crops were not *nearly* as good as *he* could raise. The manager replied, "Of course not. The field or plot you are looking at has been planted to the same thing for *five years*, with no manure or fertilizing, to see the effect. Now look at this other plot on the same kind of ground."

Well, thanks to my new egg-tester, on the *third* day I had noticed that very few eggs

showed any fertility at all; and on the fifth day I found only *two dozen* out of the whole *156* eggs that had made a start. Now, lest some one might say it was partly my new incubator I put part of the eggs in my 70-egg Cypher. The result was just about the same. I suppose you all know that eggs tested out on the third or even fifth day are, to almost all intents and purposes, *fresh eggs*; but, of course, no one would sell them without explanation. Well, we had "eggs galore" three times a day for about a month. As Mrs. Root has some of her own notions about "incubator eggs," the heavy responsibility fell mostly on myself, and I have just been wondering if the "egg diet" may not explain, at least to some extent, why I have been so well and so happy (with my "chickens") for the past month.

On Thanksgiving day I started both incubators anew, giving the Cyphers 70 eggs just laid, and my own the 24, and enough more to make 120. With the Cyphers I followed directions to a dot, and got about a 70-per cent hatch on the 20th day. In fact, the chicks all came out in just a few hours. My own gave a very poor hatch, and some of them were not out until the 23d day. Please bear in mind, however, it had the 24 out of the lot of infertiles; and I have reason to believe that, when so many are infertile, the few fertile eggs are not likely to be of strong fertility.

Another thing in this connection: Where fowls are moved to new premises the eggs laid before they get to feel at home are not likely to be strongly fertile.

When I saw how things were going I procured in the neighborhood five good males for my 80 hens and pullets; but it was about ten days before I had a good per cent of strong fertility.

Again, on filling *all* the shelves of my incubator I found the lower shelf much colder than those above it. This I have now obviated by placing a disk of tin about four inches in diameter just above the flame of the lamp, preventing the heat from going so much up the chimney and making it first warm up the bottom of the water-boiler. (This takes more oil than I mentioned formerly.) Also, those openwork shelves gave too much ventilation and too strong a draft of air up through. I have remedied this by winding wide cotton tape so as to cover the spaces between the wooden slats. This gives a warmer atmosphere in each apartment, so that a lower temperature of the boiler keeps the eggs up to 103. The space under the boiler, around the lamp, I have also closed in with a sort of thick warm curtain to retain the heat better.

With the improved incubator oil I have spoken of, one can get along very well without a thermostat; but do not undertake to regulate the temperature by turning the flame of the lamp up or down. Do the regulating by the damper in the chimney. With this good oil you can get a very steady even flame for three or four days, or perhaps a week. The five-gallon sample of oil I got in Medina is rather better than the barrel I have

since purchased in Jacksonville, Fla. Get the blaze about where you have found it should be, and then make changes by opening and closing the damper at the top of the chimney.

Now, it may not transpire that my incubator is, at least as yet, a "great discovery;" but I have just got out something else that is. If you recall what I have written about fireless brooders you will remember that they cost (at least if you try to *buy* one) a good deal of money, and none of them are strictly fireless after all. I think I have cured at one stroke most of the two troubles mentioned above.

A. I. ROOT'S FIRELESS BROODER.

Get a cheap splint market basket, such as sell from five to ten cents. Get a thin board, 10 in. long and 3 or 4 wide, and tack it under one end of the basket for a doorstep. Just over the middle of this board cut a door for the chicks to go out and in. Now make two oblong hoops of stiff wire—one to drop inside and lie on the bottom of the basket, and the other enough larger so it will squeeze in near the top of the basket, and stay where you place it. Cover both hoops with burlap, and your brooder is ready for the chicks. The smaller hoop is mainly to keep the floor of the brooder clean. If you use galvanized wire you can wash and dry it quickly. By making bags of burlap, that the hoops will just slide into, you have a double thickness. For cold or cool weather the *sides* of the basket may be protected with flannel. Get $\frac{3}{4}$ yard and fold it double so it will reach from the top rim of the basket down to the bottom, and a little more. Tack the upper edge to the top rim of the basket inside. I first put 28 chicks in such a basket, and they are doing splendidly. At first I put a folded cloth over the burlap covering at night; but they soon gave me to understand they were too warm, and needed more air. When just the thin open-work burlap was over them they were all right. Now, the low cost of this brooder is by no means its greatest advantage. You can pick it up with one finger and carry it indoors, when night comes, where it will also be safe from prowling enemies. After my brood of 28 did so well in the basket I tested a larger number, and last night had 62 chicks in just a common oblong ten-cent basket. Although the temperature was down to 42 in the woodshed, where I placed them, they got so warm I raised the bottom up on two bricks so as to let some cool air underneath. They came out in the morning, brisk and bright as crickets.

There is just one condition where a little artificial heat is needed, and I think this is true with all fireless brooders. When the strong healthy chicks are all outside on a cool day there is, of course, no heat of any kind in the brooder. If there are any weak or younger ones in the brood, a hot brick or a lamp brooder of some kind is almost a necessity. In my first experiment with 28 from the Cyphers incubator (and, of course, all hatched at once), I did not need any hot

bricks at all; but some from my machine, that came stringing along, would have perished without a hot brick in the basket afterward. When they all got into the basket at night, of course no brick was needed. Well, just now I feel like saying I want all eggs to go in the same day, and have all chicks come out the same day as far as possible, even if my machine will enable one (who wants to) to give his machine the eggs the day they are laid, and then have chicks hatching every day in the week. It can be done, but it doesn't pay unless you do it only for the fun of the thing. Have each flock of equal age and of equal strength as far as you can, and then what is suitable for one is suitable for all.

What about our "basket brooder" when it rains? Well, ours stand under a strip of enameled cloth tacked to the side of the house. One Sunday, when we were at church, a summer shower came up; and as the chicks were only about four days old they hardly knew enough to "go in when it rains;" and when I found them they looked much like "drowned rats," as the expression goes, and were peeping piteously. I thought they would have to have artificial heat sure; but Mrs Root said if I put the whole 28 in their basket, as the weather was warm, she felt sure their collective animal heat would dry them out all right. I did so, and watched them anxiously for an hour. They seemed comfortable, but were at that time by no means dry. In about *two hours* they were cutting about in the sunshine outside about as fluffy and handsome as ever.

Of course the basket will answer only when they are small; and with fifty or more an extra basket will be needed so as to "divide the swarm," say when they are a month old or sooner. And, by the way, what is the objection to an empty barrel laid on its side? Two years ago I had seventy in a barrel, and they stayed there until they were old enough to fly up into the pine-trees. Unless the barrel is pretty good, a piece of oilcloth should be tacked on the upper side to keep the contents dry.

As nearly as I can make out, a bee-keeper, Mr. V. W. Clough, now of Aurora, Ills., first brought out a fireless brooder. Philo may be also an original inventor of it, and perhaps they both made their experiments public about the same time. I have just received one from Clough. It has a capacity of from half a dozen chicks to 200, and may be enlarged in size and also in height so as to keep half a dozen pullets until they are old enough to lay inside and hatch chickens. It is really a small Philo house, and can be used as such in his system. The price is \$5.00.

KEEPING CHICKENS IN FLORIDA; EXPENSE, ETC.

At present the grain for my 85 full-grown fowls costs about 20 cts. a day; and as we are getting 40 cts. a dozen for the eggs, six eggs pay the feed-bill. At present my 80 hens are giving about two dozen eggs per day. One friend in the North says I had

better stay all summer in Florida and try to make hens lay the year round before I extol this State much further. Well, my fowls have been here several summers, even if I have not; and my neighbor Stanton gave you a report or two in regard to eggs in summer. My neighbor Rood also keeps 50 or 75 the year round, and gets some eggs all the time. When I get time to "trap-nest" out my drones I will try to show you a better egg-yield than I am reporting now.

WHY DOES A SITTING HEN "SHAKE UP" HER EGGS WHEN SHE RETURNS TO HER NEST?

I should like to tell A. I. R. I was sorry he did not go on and say what that pullet he watched threw those straws for. I think it was to start all the little hearts to beating. Once when I had a cousin here on a visit she saw a young hen come off her nest, so we got the rake and hauled the eggs out from under the porch. She said, "I think they are good," and they did look like it; but I knew they could not be, so I asked her if she ever saw the inside of an egg when the heart just commenced to beat; and as she had not I said, "Your hands are warm, let me pour the contents of one out in them;" but, to my surprise, the chick was formed clear to the feet and wings. We watched the heart beat some 20 minutes, then we put the egg in the cat's dish, and in about half an hour she went back and it still beat. About ten minutes later she went again, and it had stopped; but a little shake started it, and it beat several minutes more. Now, had it been in the shell, and warmed, it would have kept on. My own theory is, that an old hen always settles herself on the nest so as to give the eggs that little shake. I have worked with incubators and sitting hens a long time to find out that one little point why the hen gets on her nest just so, especially when she comes in a hurry, and her eggs are cool. I read with interest your chicken talks as well as those for home and health.

What Cheer, Iowa.

R. KING.

In testing eggs with my new tester I have several times noticed the movement inside was very sluggish, or perhaps none at all, when the eggs had just been cooled. Warming them up seems to restore life; and it may be a little shake, as our brother suggests, wakens up the suspended animation. I once saw a doctor's patient, under the influence of chloroform, stop breathing. The old doctor gave him a little shake, and said, "Come! wake up and go on breathing." The patient, after a little pause, fetched a long breath, and was soon out of danger. Eggs at a *certain stage* can be kept three or four days—possibly a week, and be, of course, perfectly cold, and still revive and produce good chickens, if given to a hen to warm up, and, perhaps, also give them that "maternal shake" our friend calls our attention to.

GOOD FOR THE WYANDOTTES.

I have 13 pullets, hatched about April 1, White Wyandottes. The first one commenced to lay Oct. 1. By the 20th they were all laying. I did not keep a record of how many they laid in October; but in November they laid 289 eggs, or more than 22 each. Up to last night, Dec. 18, they laid 179 eggs, and are still at it.

Dalton, Pa., Dec. 17.

T. H. MILLER.

BURBANK, FLORIDA, THORNLESS CACTUS, ETC.

In the *Toronto Globe* for Nov. 6 there is an advertisement occupying a double page of a great newspaper, with pictures of Burbank's thornless cactus, and it really "takes the

cake" for extravagant advertising. We give you the opening sentences, which we find right under the immense picture of the spineless cactus.

WHAT THIS ANNOUNCEMENT MEANS TO YOU.

It means financial independence for the rest of your natural life.

It means that you secure a farm in Florida on which you can produce the Burbank and other products and ship them to the markets of the world, realizing the very highest prices.

It means that earnest men and women of the North, East, and West may free themselves from the shackles of wage-earning—or dispose of their non-productive acres—and in the glorious climate of Florida live a life of ease and comfort.

It means health—long life—freedom from worry—living under the turquoise skies of Florida engaged in the noblest of all callings, that of the producer who makes it possible for the rest of the world to exist.

It means that, in the years to come, when this great organization has fulfilled its allotted destiny, you will realize that you have not only made a tremendously profitable investment but that you have been instrumental in promoting the desires and ambitions of the world's greatest plant genius—Luther Burbank.

In the section of Florida wherein are located the Burbank-Ocala farms the soil is actually so rich that it could be used, if necessary, to fertilize other sections of the State.

Of course, we do not know how much Burbank had to do with it; but we do find a letter from him, in another place, as follows:

LUTHER BURBANK SAYS FLORIDA SOIL IS VERY RICH.

Santa Rosa, Cal., July 15, 1909.

Mr. H. C. Bailey, President

New South Farm & Home Co., Chicago.

Dear Sir:—The samples of soil from Florida, which you have submitted for my inspection, are of very superior quality, so far as I can judge from samples. Of course, I do not know how truly the samples represent the general character of this soil; but if it is all like this, I would gladly pay one thousand dollars per acre for soil like it, for my own experiment grounds here. Just the right proportion of black leaf mold and fine sharp sand for the most perfect crops, especially of potatoes, melons, peas, beans, celery, and other garden crops; also for berries or farm crops. My new smooth rapid-growing cactus should do wonderfully well in such soil.

Yours very truly, LUTHER BURBANK.

You can find all over the State of Florida deserted plantations where somebody "blew in" his money, and afterward felt so disgusted with the outcome (or income, rather) that he left every thing to go to waste and ruin. Once more let me say, before you invest a copper in Florida real estate, go down and take a look and see what you are buying before you hand over the money.

THE "OCALA BURBANK TRACT" OF FLORIDA LAND, ETC.

Below is a sample of the letters I am getting from almost all over the North:

I am sending you a post card. I am thinking of investing in ten acres of this "Ocala Burbank Tract." Will you please write a few words on the enclosed card and tell me what you know about this tract of land. If you think this land is as good as where you are I will send the company \$10.00 to secure ten acres of it. If you think this is good land for celery, lettuce, etc., as it is where you are, I will come down there next month and take a look at it.

Merino, Colo., Nov. 28.

T. J. LANDRUM.

My impression is that Burbank has nothing to do with this speculation, and perhaps he has never given these people the right to use his name and his letters as they are using them. This is true, however: He has, at

least so far as I know, made no protest against it. Let me say to friend Landrum and others, there are at least two great obstacles in the way of the Ocala tract being as good as Manatee Co. for celery, lettuce, etc. Frosts are very much worse in the north and there are no artesian wells in that region.

A "KNOCK" IS A "HOLD-UP."

Last spring one of our readers became interested in the St. John's Development Company, which operated in Florida lands. After an investigation we became convinced that the land was such that it would not make a good investment. We wrote our friend to this effect, and he seems to have turned the letter over to the operating company. It was effective at least. The following is an extract from the letter he received in reply:

We are in receipt of your favor with the letter from the *Rural New-Yorker* attached, and we note what they say in regard to our lands in Florida. We did guarantee to return money to customers who were not satisfied after making an investigation; but we believe that, in fairness to all, an investigation would be a little fairer than writing to a personal friend in New York State, who has not seen the land, probably has never been in Florida, and who runs a cheap magazine that is practically unknown. If we had been given the columns of this magazine, they, no doubt, would have said glowing things about our property, and we consider this "knock" nothing more than a hold-up. We shall be only too glad to refund money to any one who is willing to take the word of any one so *little known*, and who has no right to speak authoritatively on this subject.

It is too bad about this "cheap magazine" which is "so little known." The writer owns a piece of land in Florida directly across the lake from "St. John's Park." All along the shore are deserted houses and ruins of orange-groves. In former years these houses were occupied; but death lurked in the damp climate, and northern people could not live there. We have reports from people who have known the land in question for years. They had chances to buy it, but would not touch it.—*Rural New-Yorker*, Dec. 11.

THE WONDERBERRY UP TO DATE.

We clip the following from the *Rural New-Yorker* of Dec. 11:

What has been the result of your campaign against the wonderberry? J. S. A.

We can answer that better when Mr. John Lewis Childs issues his next catalog. Some of the other catalogs will also help answer the question. We understand that Mr. Childs has a very large stock of wonderberry seed on hand. It was also reported at one time that he intended spending \$20,000 in advertising it. We have proved beyond any question that the seeds which Mr. Childs sold developed into plants of the black nightshade. Luther Burbank offered \$10,000 if we or any one else could prove that the wonderberry was a black nightshade, and we have offered him proof from hundreds of sources. Among others who testify are the experts of the United States Department of Agriculture; dozens of botanists at the State experiment stations; Dr. C. H. Peck, New York State Botanist; Dr. L. H. Pammel, of Iowa; the botanists of the Kew Gardens, London, England; the Harvard Botanical Garden; the Royal Horticultural Society of England, and the Royal Horticultural Society of France. In addition to this, plants identical in character with the wonderberry have been found growing in Mexico and Texas, where they have been known for years. All this has been put up to Mr. Burbank, and he can have more if he wants. Thus far not a dollar of that \$10,000 has been separated, and not a word of apology to the American people for letting loose his "wonderberry" as a new "creation." The effect of this childish folly upon Mr. Burbank and his later "creations" remains to be seen.

"BELIEVEST THOU THIS?"

Mr. A. I. Root:—I am sending you two clippings from the *Farm News*, which I thought might interest you. By the way, the *News* is published in Dallas, Texas. Your home papers become more and more interesting, and you ask me, "Believest thou this?" Yes, I believe; and your earnest words have strengthened this belief. If I thought you were not too busy I could write much to you. Suffice it to say, that in this home your papers are eagerly read, and are working miracles; and every one refers to you as "Father Root."

MADELENE E. PRUITT.

Ranch Vigo, Vancourt, Texas, Sept. 3.

TEMPERANCE.

"NO DRUNKARDS NOR CIGARETTE FIENDS ON THE PAYROLL."

We copy the following from the front page of the *American Issue* for November:

FROM THE GOVERNOR OF KANSAS.

It is a common thing in Kansas, in a majority of counties, not to have a prisoner in jail, and most of those fellows gathered in jails are there because of intoxicating liquors. There is a close relation between drunkenness and jails and penitentiaries. It means a great saving to the people of this State and nation in an economic way. I expect, while I am governor of Kansas, to stand for the best things in public and private life. We won't have any drunkards on the State payroll while I am governor, and we won't have any cigarette fiends on our payroll either. I am going to have this State government stand up for every thing that is good and noble, and for high ideals, and boost Kansas just as high as we can.

GOVERNOR STUBBS, of Kansas.

May God be praised for a governor who can honestly utter such sentiments. Now have we any more governors who have the willingness and courage to stand by the side of Gov. Stubbs?

SALOONS LOSING GRIP BEFORE DRY CRUSADE.

"Eleven thousand saloons voted out of existence, and 4000 more forced to close in 1908."

This is the record of the things accomplished by the Anti-saloon League of America, according to Dr. P. A. Baker, general superintendent of the league, in his biennial address before the semi-annual convention in session at Orchestra Hall last night.

"Since January 1, 1909," he said, "saloons have been closed at the rate of forty a day; but that 70 per cent of the area of the United States forbids licensed liquor traffic tells only a part of the visible results. No power of evil on earth can long withstand this continued onslaught. 'The gates of hell can not prevail against it.'"

"There is no class that suffers so much from the drink traffic as do those who perform manual labor, and there is no class so much exploited by the saloon and brewery element as they. The great labor movement is yet to become a great spiritual and religious movement. Organized labor is fundamentally a holy crusade. It often blunders, but it is a struggle toward light and justice and a square deal. It is striving for a principle of righteousness, but all the while, as a body, refusing to give due recognition to the source of all righteousness. Soon they will turn to the carpenter's Son and his church for assistance."

"We must not for a moment forget that this liquor problem is the church's problem, that the church must solve it. It can not turn it over to the Woman's Christian Temperance Union. It can not turn it over to any political party. It is not the province of a political party to inaugurate moral issues."

Dr. Baker also paid a tribute to the work of the W. C. T. U. in doing educational work in the schools, as did other speakers during the day.

Speaker Cannon came in for considerable severe censure at the morning and afternoon sessions at Handel Hall, and a concerted war against the congressional leader was promised. He was blamed for the defeat of efforts to secure anti-liquor legislation.

"We make no charges," said Legislative Superintendent William H. Anderson, in making his report, "but point to the unerring accuracy with which circumstances just simply 'happened' to prevent putting any real burden on the liquor interests in the recent tariff law."—*Chicago Record*.

The Department of Agriculture of the State of New York will hold bee-keepers' institutes at the following places and dates: Amsterdam, Feb. 8; Syracuse, Feb. 9; Watertown, Feb. 10; Rochester, Feb. 11. There will be three sessions daily. All of the New York State inspectors are expected to be present, and will be assisted by local talent. Every one interested in apiculture is invited to attend and take part in the discussions. A special invitation is extended to the ladies.

W. D. WRIGHT, Agent.